Abrasion resistant pavers

When the new South African Bureau of Standards (SABS) directive for paving slabs is released in January 2010, the industry will need to be ready to meet the new challenges.

Pan Mixers director Robert Ebeling says that the standards governing paving slabs in the past will be altered to ensure that stones are not only strong, but abrasion resistant too.

"In the past, paving has sometimes failed-not because of the paving stone strength, but because the abrasion resistance of the pavers was not adequate. The new standards will see an increase in the abrasion requirement to overcome this."

Pavers need to have both a high breaking strength and a high abrasion resistance factor. "This means that two different types of concrete will be required in the manufacturing process. The base concrete must be extremely strong, while the topping concrete must stand up to intense and ongoing abrasion," explains Ebeling.

In order to facilitate the manufacture of pavers that requires the filling of a coarse, strong base and then a finer, abrasion resistant cement, Pan Mixers' equipment has two different feeder boxes on the machine.

"One feeder box allows for the pouring of the base concrete. Once this occurs, the concrete is either pre-vibrated or the tamper drops down to gently 'squeeze' the concrete to make space for the second layer. The second feeder box then comes over and fills the mould with the finer concrete, and the tamper comes down again with vibration, compacting the two layers into a single paver," says Ebeling.

Pan Mixers warns that moisture content and mix designs must be "spot on" to avoid the delamination of the pavers.

To enable its clients to test the abrasion resistance of their paving slabs, Pan Mixers is currently manufacturing an abrasion testing machine, which was developed by the Concrete Masonry Association.

"The machine comprises a drum, into which ball bearings are placed. Pavers are then bolted to the walls of the drum. When the drum spins, the bearings hit the pavers, simulating abrasion. After a specified number of revolutions, the pavers are weighed and measured against their weight before the spinning. If the weight loss falls within certain parameters, the pavers will be considered abrasion resistant."

Robert Ebeling, director of Pan Mixers

Ebeling believes that having the company's own abrasion testing equipment will enable its clients to keep within the specifications laid down by the SABS, and minimise downtime in testing.

"This is good news all round," says Ebeling. "The industry has been pushing for higher standards for many years. The problem was that without an abrasion test, the pavers would meet specifications, but they certainly weren't tough enough and they abraded."

While using the topping feed attachment slows the production process down-lowering efficiency and possibly causing costs to rise-the advantage is that the more expensive, abrasion resistant mix is a relatively small part of the total paver, which to some extent can offset the loss of productivity.

"The other advantage is in being able to add colour only to the top surface of the paver, cutting back on colouring costs."

As South Africa's leading provider of turbine, counter current and planetary mixers across a variety of industry sectors, Pan Mixers constantly researches, develops and brings to market innovative products that offer solutions for the metallurgy, concrete, refractory and ceramic industries.

"We will be ready to assist our clients to meet the new requirements," Ebeling concludes. ■