

The automatic density measurement of fresh and return slurry: Controlling the details of AAC production

For producers of Autoclaved Aerated Concrete (AAC) around the world, it is very important to be in control of the raw material and AAC formula process, in order to optimize their raw material consumption and quality of the produced output. This does not only require a profound understanding of the chemical processes, but also the right supporting equipment that is able to provide instant, reliable feedback so adequate actions can be taken if required. This also assists the laboratory personnel in adapting recipes when needed.

An important component in the production process, which is something that every AAC factory tries to keep constant, is fresh and return slurry density. A (sudden) deviation from the optimized density can have big impacts on the production process. Diluted

slurry limits the ability to add water in the mixing process, thereby reducing the options to regulate the temperature of the mix. On the other hand, slurry that is too dense may cause issues with mixing or pumping the slurry.

In many plants, slurry density measurement is still done in a manual mode. A growing number of factories are however interested in automatic density units, in order to be in continuous control of this aspect of the production process. New methods of incorporating process automation instruments, in which the slurry is measured by isolating the solids content, are microwaving, Coriolis mass flow and radiation-based technology. Even though these methods are in many cases quite reliable and accurate, these solutions require a relative high capex, calibration issues, installation permits due to safety reasons and maintenance challenges.

One of the simplest and a very reliable method of measuring the fresh and return slurry is by installing a weighing U-pipe as a density measurement device. Based on continuous feedback from the production process, the u-pipe automatically measures the gravity of the suspension and solids in the slurry with an integrated load cell (Fig. 1). As a result, if required, immediate actions can be taken by process engineers or lab personnel in order to restore the density to the desired levels.

Industry leading plant suppliers, like Aircrete Europe, have this feature standard integrated in their factories. With continuous feedback from the production process and automatic logging possibilities in the reporting system, the advantages of the Aircrete U-pipe

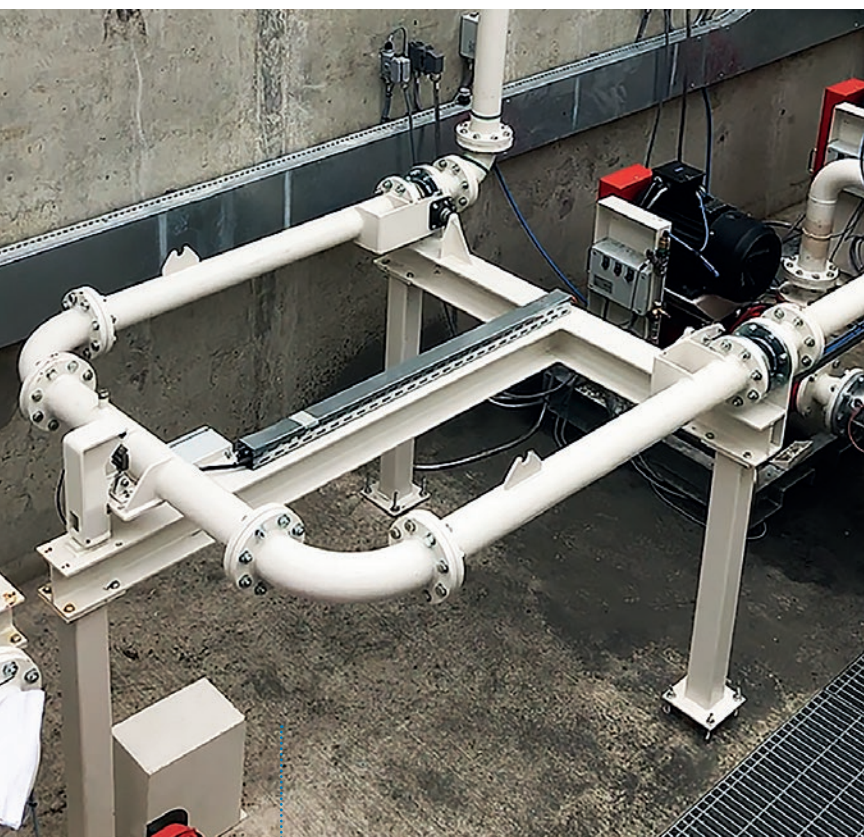


Fig. 1: The u-pipe measures the suspension and solids in the slurry continuously through an integrated load cell.



Fig. 2: The benefits of using Aircrete U-pipe for automatic density measurement of fresh and return slurry

are very straightforward (Fig. 2). Furthermore, a significantly lower investment cost compared to other density measurement equipment, effortless calibration and reliable usage with a very long lifetime add to the list of advantages. In addition, the Aircrete U-pipe is very easy to install into an existing AAC plant's equipment by simply redirecting piping and also easy to integrate in the plant's existing control system. The smart positioning of the u-pipe minimizes the risk of possible build-up of slurry in the pipe, and a flushing mechanism allows for flushing during a stop in case required.

Interested in the Aircrete density measurement device, or in a full professional scan of your existing factory and production process, read more in the "Plant Scan – Optimize AAC production by understanding cost drivers" article published in AAC Worldwide 2 | 2019 or contact Aircrete Europe. ●



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