Determining concrete pumpability

"Experience has shown that only little changes in a concrete recipe will result in substantial effects on concrete pumpability and especially pipe system pressure. In a given situation, one may very well arrive at the conviction that some other pumping constellation than the one initially envisaged will serve its purpose better and hence a new one will be included in project preparation," says Dr Knut Kasten, who is in charge of development at Putzmeister’s department of application technology. But this uncertainty is now meant to be over with. "To achieve this, Putzmeister has developed a new rheometer designated "Slipex Pipe Rheometer" — in short Sliper."

**Sliper** allows for investigation on the pumpability of concretes both in the lab and on the construction site. The device consists of a vertically arranged pipe that can be filled with fresh concrete. Inside the pipe, there is a piston mounted on a base and featuring an integrated pressure sensor. During its downward movement, the generated pressure inside the pipe and the speed of the pipe’s movement are simultaneously recorded.

To determine a concrete’s characteristic curve, a measurement cycle with various conveying pressures is worked through. This is achieved by loading increasing weights onto the device and obtaining measurement values of conveying pressure and speed are transferred via Bluetooth to a conventional Smartphone that graphically displays and then memorizes them. The system is portable, robust, network independent and designed to work on a construction site as well. This evaluation system permits a precise description of fresh concrete characteristics, thus allowing the user to arrive at reliable diagnoses for the projected pumping application. To accomplish this, a calculation model has been provided that allows the Sliper system to be used for the predetermination of pressure losses in concrete pumps.

Schleibinger Geräte GmbH, a company known, among other products and services, on account of its Viskomat and eB2 concrete rheometers, will introduce the Sliper system in the spring of 2015 to the German and international markets.

**FURTHER INFORMATION**

- Egor Serier, Marko Butler, Viktor Mechtherine: Prüfen der Pumpbarkeit von Beton — Vom Labor in die Praxis, Bautechnik 91 (2014), Heft 11, 797-811

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**Testing pumpability of concrete:**

- mobile
- simple
- battery operated
- App for smartphone

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