

Data Analysis

Data Management, Archiving and Analysis

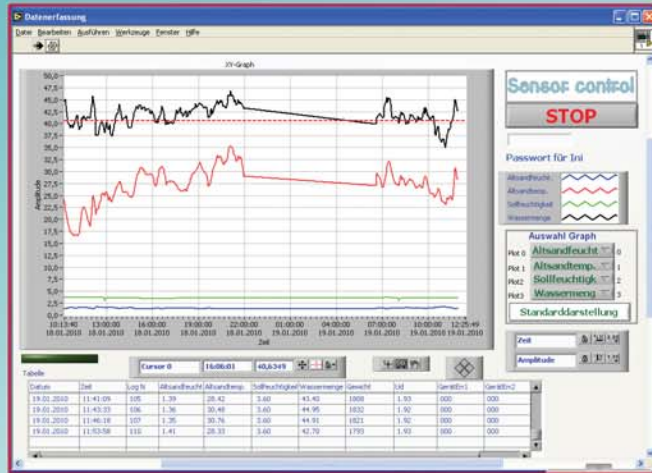


Fig 1

The data measured by the SPC are transferred via Ethernet or serial port to a PC. The PC will have two software programs installed. One program for data collection and archiving (Fig.1) and a second program for data display and statistical calculations. (Fig. 2)

Data Collection and Archiving

The test results are presented in table and graph format, allowing a quick and uncomplicated view of all relevant measurement details.

Presentation and Appraisal

Up to four sets of measured data can be simultaneously displayed, for any selected time period, statistically as well as to a standard or custom scale.

Various visualization tools improve the overview and make the analysis of the collected data easier.

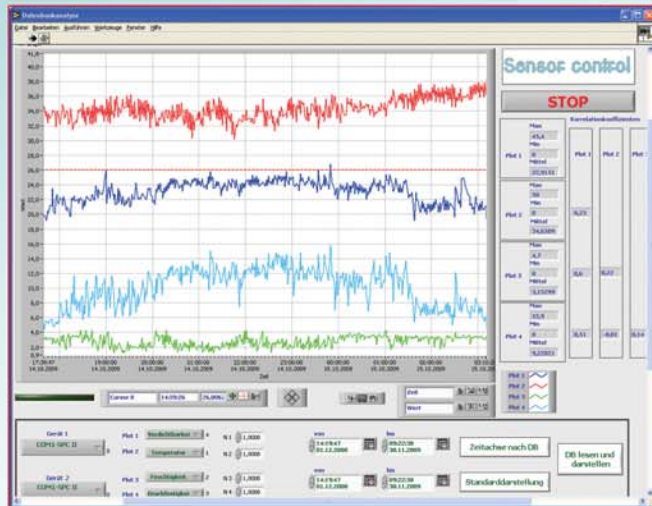


Fig 2

The following data can be collected in standardized format:

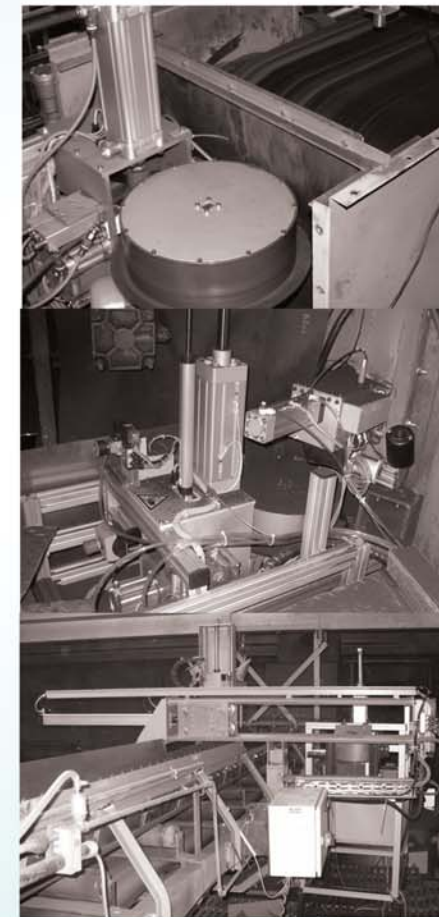
- Date and Time
- Continuous batch number
- Compressibility
- Compression or Shear Strength
- Moisture Content
- Temperature
- Error Data

Utilizing a complete Moisture Control System additional data can be collected:

- Used Sand moisture and Temperature
- Batch Weight
- Desired Moisture
- Metered amount of water
- Mixing Time
- Additional customer specified data

Sensor control

Automatic Sand Testing Systems Series SPC



A universal measuring system with selective sampling to control the operation of batch mixers:

- at a conveyor belt transfer point – **SPC II**
- with Samples directly from the Mixer – **SPC III**
- by Sampling from a belt conveyor – **SPC IV**

and Measurement of

- the Compressibility and
- the Compactability or
- the Shear Strength (optional)
- the Moisture Content (optional)
- the Temperature (optional)

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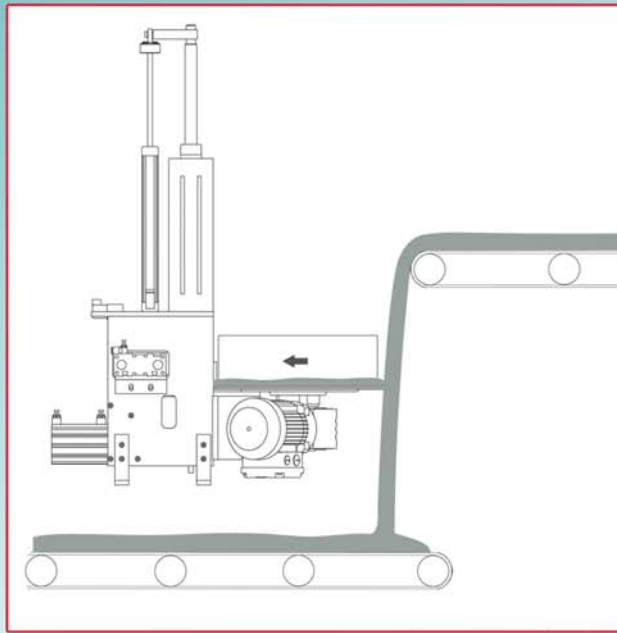
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Automatic Sand Testing Systems **SPC**

Sand Process Controller - **SPC II**

For installation at a conveyor belt transfer point



The standard system SPC II is preferably installed at a conveyor belt transfer point between the mixer and the molding line. A miniature turntable continuously extracts small amounts of sand from the flowing sand stream and fills a cylindrical test container (Diameter 50 mm, height: 100 mm).

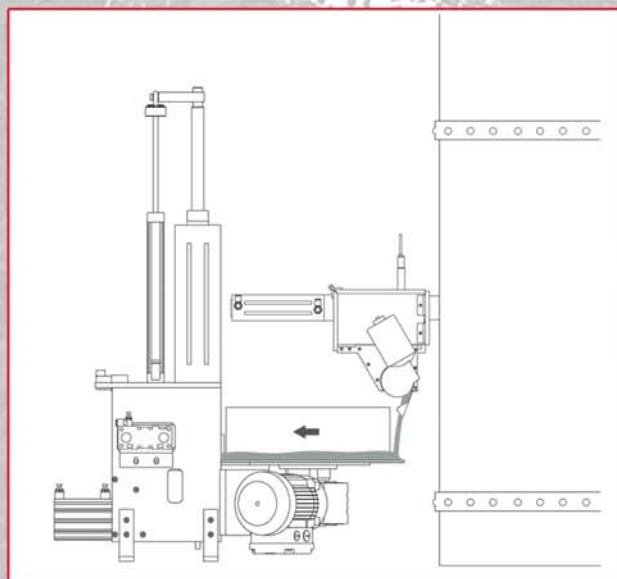
The sand sample will be tested for compactability and optionally for compression or shear strength, moisture content and temperature. The number of test samples per batch can be adjusted based on customer specifications.

Based on the measured values, additions of water and bentonite for the next batch can then be corrected.

The system consists of only a small number of moving components thereby guaranteeing long life expectancy with low maintenance requirements.

Sand Process Controller - **SPC III**

For installation on a mixer with sampling and preparation unit



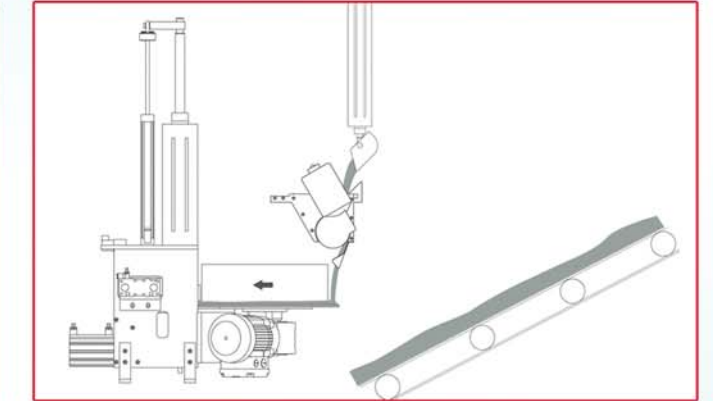
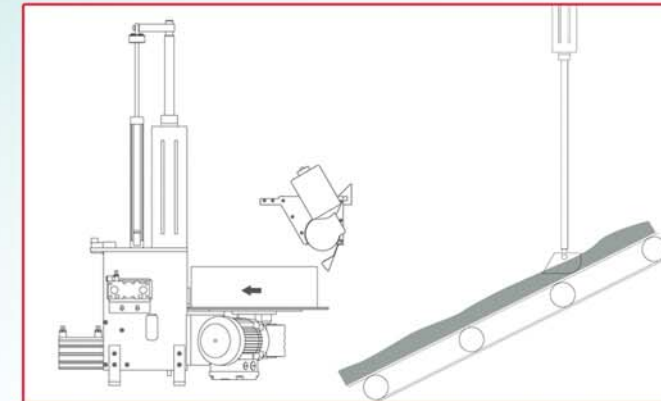
Here, the standard system SPC II and a sampling and preparation unit is mounted directly on the mixer.

The SPC III solution is suitable for all types of mixers with a fixed mixing drum. To mount the equipment requires an opening in the mixer's drum wall of approximately 70 mm.

The sand sample is prepared and then dropped into the cylindrical test container. The same measurements can be taken as for the standard system.

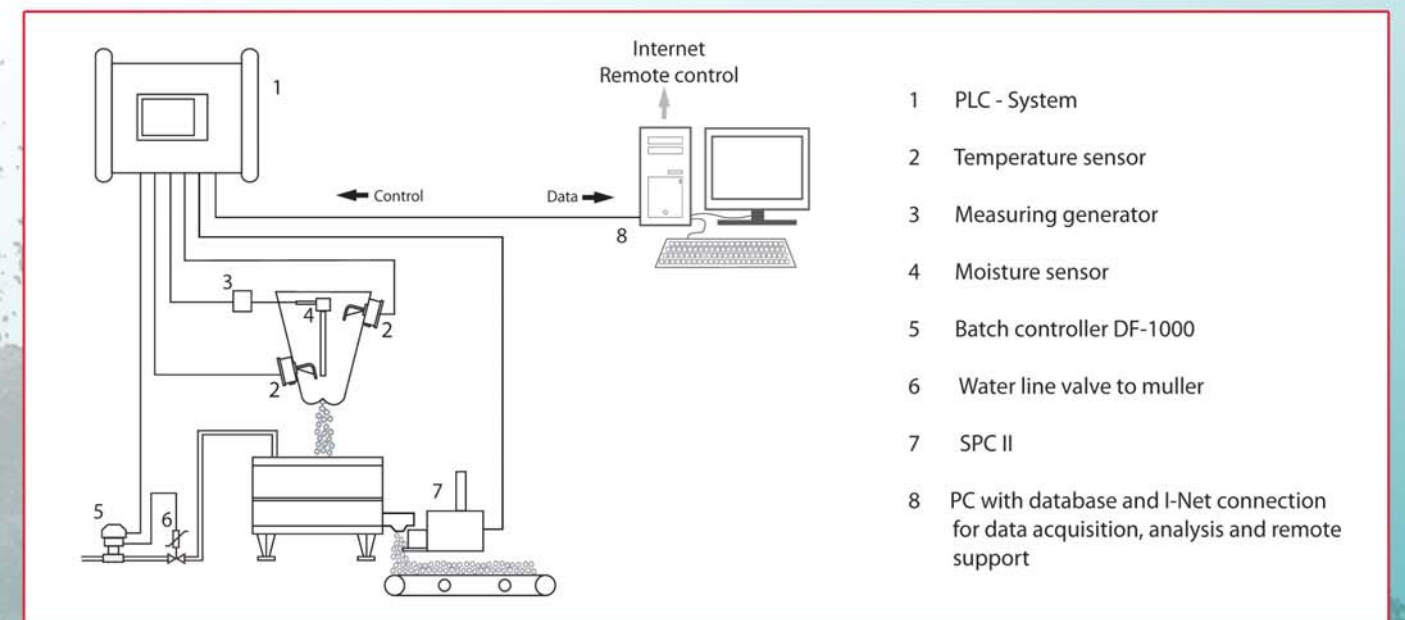
Sand Process Controller - **SPC IV**

For installation at a conveyor belt with mechanical sampling device



This system consists of the standard system equipped with a mechanical device capable of extracting sand samples directly from the conveyor belt. This mechanical device can be designed in a variety of ways and will be developed with considerations of the customer requirements. This system is also capable of performing the same tests as the standard system.

Added Features for a Moisture Control System



When installing a Sand Process Controller we recommend the addition of a Moisture Control System to control all essential sand properties. By testing the incoming used sand upstream of the muller it is possible to add the necessary water at an early stage in the mixing cycle without having to lengthen the batch mixing time.