Our sensor technology is independent of mixer type and mixer function. Installation of the moisture sensors in the container scale above the mixer is preferred by us. This point of installation affords static and consistent measurement during the filling process and, thereby, accurate determination of the moisture.

Immediately after filling the used sand weighing device / pre-hopper, the water requirement is calculated. The mixer control unit by the user provided determines the timing of dosage.

Teflon coating of the probes prevents caking on the same and, thereby, measuring errors. Due to the choice of this installation geometry, which is proven over many years, there is very little wear. Many of those probes, depending on design length, have been in service for many years.

The moisture measuring probes are installed in pairs in the hoppers. Each probe constitutes a measurement condenser with the container wall. During the filling process the whole batch is penetrated very uniformly by the electric field and the moisture content of the complete batch is measured.

As the probes are installed vertically, they can also serve as level sensors. Therefore, the density of the moulding material, which depends on the moisture of the sand due to the swelling of the available active binding clay can be taken into consideration in the calculating model (Sandmaster principle). This applies, however, only in case of gravimetric determination of the batch.

TRUST IN INNOVATION

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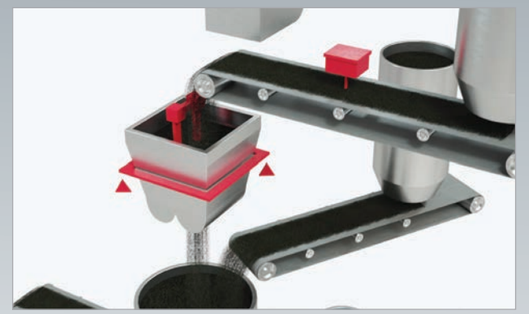
INNOVATIVE PLANT CONCEPT DESIGNS

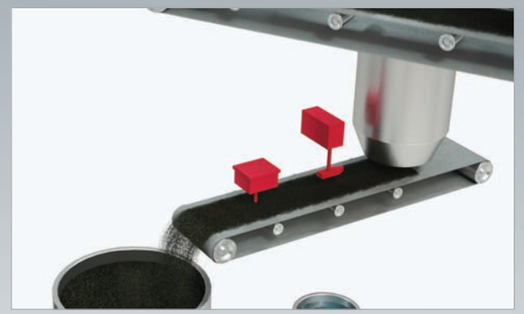
AUTOMATIC MOISTURE CONTROL AT THE BATCH MIXER FRS-M

- Moisture measurement
- Temperature measurement
- Batch weight
- Adding water

MOISTURE CONTROL at the batch mixer

Belt mounting with **MOISTURE SENSOR** and **TEMPERATURE PROBE** if no hopper available





WATER ADDITION with water tank

WATER ADDITION with tube

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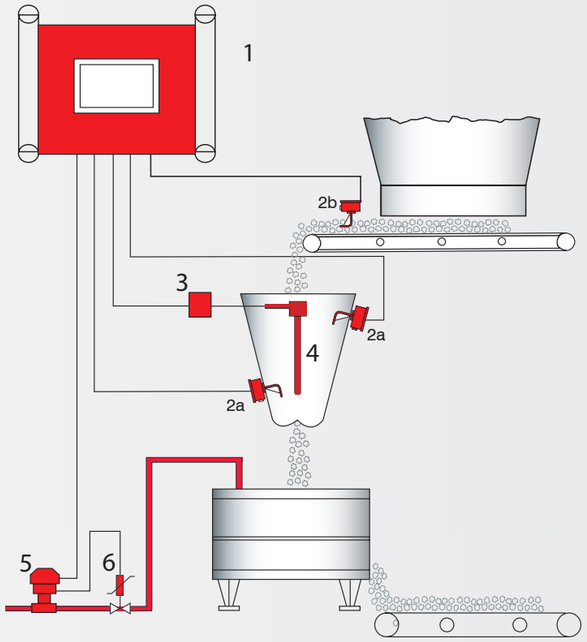
MOISTURE CONTROL AT THE BATCH MIXER FRS-M

The moisture measurement works according to the principle of capacitive moisture measurement. As the permittivity of solid matter, i.e. also that of foundry sand, is at 2-4 and that of water (20 °C) is near 80, excellent measuring results can be obtained. This measurement is influenced by temperature, so that temperature compensation is a mandatory and becomes part of the calculating model. The sensors used to determine the material moisture and temperature are manufactured in a low-wear manner according to their place of use.



1. PLC system with touch panel
2. Temperature sensor 2a or 2b
3. Measurement generator
4. Moisture sensors
5. Water dosing unit DF-1010
6. Water valve of mixer

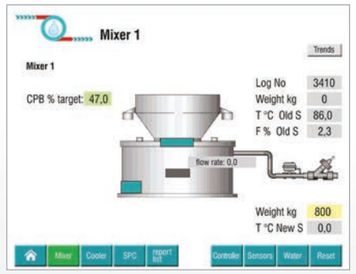
Example: Automatic Water dosing system

HARDWARE

As a module for connection to the FRS-Central or as a single version with its own HMI in a control cabinet. In the case of PLC-based control and control units, a selection between a Siemens S7 or a PLC from the company B & R industrial electronics is possible (as of May 2019). It is also possible to adapt to existing older PLC versions.

SOFTWARE

- Multi-touch menues
- Presentation of the process data
- Intuitive user interface
- Measuring watchdog function



DATA BASE

All process-relevant data are filed in a data base and presented graphically for evaluation. In addition to the control parameters the following data can be stored in the data base:

- Moisture measurement
- Temperature measurement
- Batch weight
- Adding water
- Compactability *
- Compression strength *
- Shear strength *
- Density *

Special customer-specific features can be integrated.

* only with SPC system included.

CROSS LINKING

- Data security
- Mobile HMIs / User interfaces
- Remote maintenance / diagnostic