

## Moisture measurement

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**Objective:** The moisture level in reclaimed sand is the aspect of the sand management system which is subject to the greatest fluctuations and has a significant influence on the quality of the moulding sand. A prerequisite for automatic water dosing which will allow a uniform moisture content after the processes in the cooler and in the mixer, is accurate moisture measurement **regardless of the moisture content level and temperature range.**

### Electrodes:

Moisture measurement stations can be set up at certain points in the sand preparation process. For every application, special electrodes are used. Depending on the sand area, bipolar or tripolar electrodes are used. When the measurement takes place in the mixer, it is important to check whether the electrodes can be securely installed from above into the housing. If that is the case, even a self-cleaning type can be used, otherwise a rotating electrode can be used which uses a rotary transmitter to emit its signal to the outside for evaluation. The same is true for coolers with mixing tools which also have rotating electrodes fitted to them.

### Measuring equipment:

The water content is determined using the process of conductometry. By means of an automatic scanning process in four measurement sections, operational ranges of approximately 3 MegaOhm (dry) to 300 Ohm (damp) are covered.



*Moisture measurement using the SPS system can be extended to cover up to four measuring stations.*

The measurement range of normal synthetic foundry sand is between 0.5% to around 4% moisture content. The resolution in the entire scale range amounts to 1/100%. A special temperature compensation process, which is optimised using linear regression, can detect deviations in the measurement range between 1°C und 100°C. The measuring equipment is equipped with a simatic S7 1200. The connection to the technology of the outside world takes place via an Ethernet port.

### Advantages:

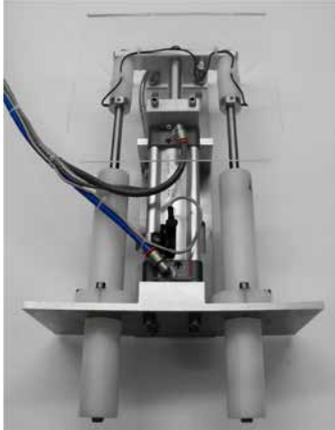
1. Real-time measurement
2. Self-cleaning electrodes reduce measurement errors
3. Setup with the simatic S7 1200 SPS
4. Communication for display and settings via Ethernet
5. Temperature measurement

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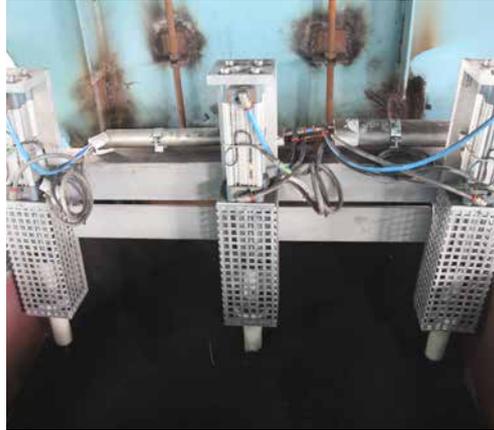
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## Electrodes



Our bipolar moisture measuring electrode FS112



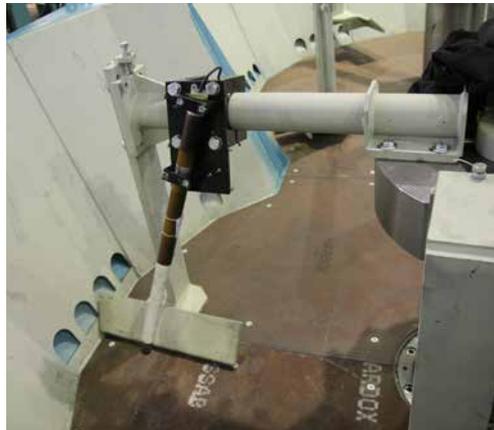
Three monopolar moisture measuring electrodes MFS111 for broad batching belts



The tripolar measuring electrode TFS141 measures the moisture content of the reclaimed sand on the conveyor belt.



Self-cleaning electrode in the mixer



Rotating electrode in the cooler



Rotating electrode in the mixer

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