MOULDINGSANDMANAGEMENT 2020

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Water dosing for mixer

(measured twice for more precise dosing)

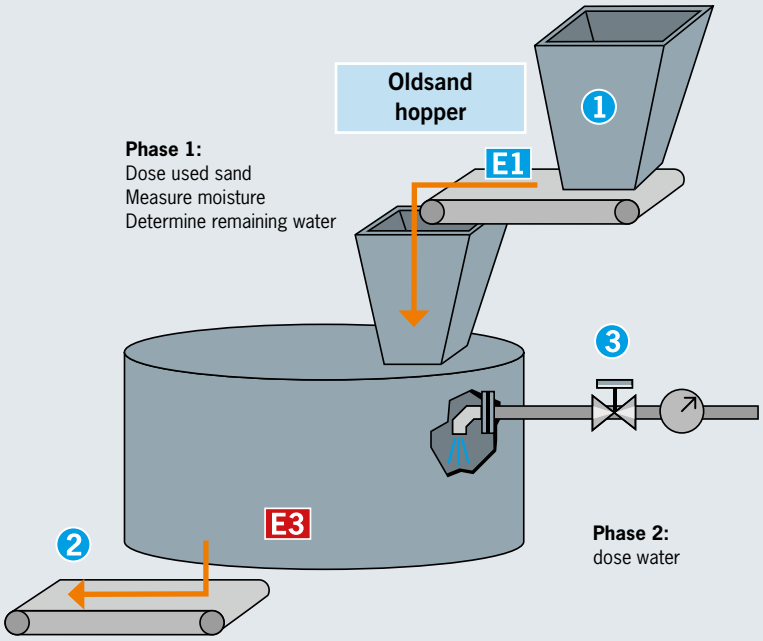
akwa^{plus}*_mix*

Sand preparation

1. **Sand intake**
   (Sand moisture [%], Sand temperature [°C])
2. **Sand outlet**
   (Sand moisture [%], Sand temperature [°C])
3. **Water inlet** [Litres]

E1 Electrode 1
E3 Electrode 2

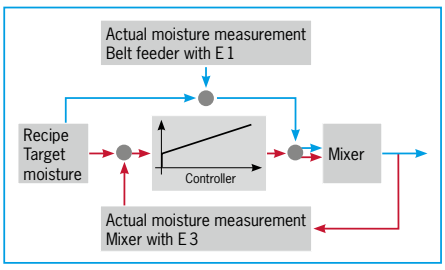
Wetting = required sand moisture – intake sand moisture



The task: A uniform moisture level in the molding material is an important foundation for the prevention of many problems in quality assurance. With a variety of loads and processes, the used sand before the mixer undergoes considerable moisture and temperature fluctuations. The objective of a secure and reproducible working moisture measurement and control system is the **consistent moistening of the used sand in accordance with the formula and the balancing of temperature effects.**

Approach:
The advantages of two measuring moisture procedures are utilised, which simultaneously offsets their disadvantages.
The separate moisture measurement on the belt feeder before the mixer allows for quick water dosing. The moisture measurement in the mixer monitors deviations and fine-tunes any discrepancies.
During dosing, the moisture and temperature are continually measured. The mean values are determined by averaging, and at the end of dosing the residual water demand is determined by offsetting the recipe default value. A regulated correction value, generated from the last batches, provides a quick adjustment and small corrections during the mixing process.

This allows for the fast calculation of water requirement in the sand before mixing begins.



Solution:
Two measuring devices are provided. An additional electrode is installed in the mixer as basic equipment for the moisture measuring device, which is also available as a rotation electrode. A controller processes the actual moisture value and enters its correction to the additional water amount. For process visualisation, a colorful screen display with continuous monitoring of the relevant measurement data can optionally be implemented.

Advantages:
1. Accurate moistening for cold and warm sands
2. No time delay in the mixer
3. No measuring devices in the interior of the mixer
4. Low-wear measuring device design
5. Self-cleaning moisture electrodes on the belt feeder
6. Recording of measurement data
7. Increased process reliability
8. Increased precision due to
   - doubling of measurement points and
   - innovative multi-stage control concept for adjusting the changes in sand characteristics

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Dosier- und Automationstechnik GmbH · Alte Salzdahlumer Str. 203 · D-38124 Braunschweig
Fon +49 531 26408-0 · **Fax** +49 531 26408-20 · **E-Mail** info@datec.org · **Internet** www.datec.org

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