

HARDWARE

CENTRAL PROCESSING UNIT

In the standard version a modern PC cabinet with clear glass door for the monitor and a drawer for the touch-sensitive keyboard with mouse.

The hardware can also be integrated into other cabinet systems.

An industrial personal computer in a robust housing, with CE mark, with equipment available on the market. Minimum equipment required:

- Intel Pentium 4 processor, 2.8 GHz
- 80 MB hard disk storage
- 512 MB main memory
- CD-ROM drive
- Plug-in boards for 16 digital inputs and 16 digital outputs and 16 analog input signals

A touch-sensitive keyboard with mouse pad, suitable for use in a rough industrial environment.

15" low-radiation monitor

Modern, high-performance ink jet printer

Robust optocouplers for the digital signals

SENSOR SYSTEM

Moisture and temperature sensors commensurate with the mechanical situation and job in question, in a large variety of possible versions and with different measurement methods.

Optional humidity sensor for optimum calculation of exhaust steam in order to compensate the loss of exhaust steam until consumption of the moulding material on the moulding machine.

Optional integration of weighing systems for continuous (belt weighers) and intermittent (hopper weighers) registration of throughputs and charge weights, and as a reference value for optimum moisture control.

Optional installation of a measuring point (sand process controller SPC II): for testing the final sand (compactability, shear strength/compressive strength, moisture and temperature)

Optional registration of the mixer flow

Optional installation of sensors for monitoring the water and air pressure in supply lines

METERED ADDITION OF WATER

In the standard version, metered addition of fresh and/or industrial water with high-precision metering computer DF 1000

Optional installation of a water balance, size commensurate with requirements

Monitoring of the metered addition of water and of the metering time

Optional specification of a fixed water quantity with inclusion of this quantity in the calculation

SPECIFICATION OF MOISTURE SETPOINTS

Interactively via keyboard or mouse

Via digital input signals through preselection of formulations

Via a setpoint remote control

Via a parametric analog input signal 0-20 mA = 0-10% H₂O

SOFTWARE

Based on WIN-2000 Prof or comparable programs using the visualization software LAB-View by National Instruments. Powerful software with convenient graphic user interface

Graphic presentation of customers' specific sand preparation with process sequence, measured value display and indication of signal states

Text display of the workflow process, errors and all measured values for each charge

Generation and storage of a daily database with all relevant data, such as date, time, charge number, charge weight, measured moisture and temperature, calculated water quantity, set-point, errors and other data specific to the customer.

Comprehensive test programs for rapid analysis and error diagnosis in measurement boards and sensors

Presentation of data in any language

CUSTOMIZED ADAPTATION OF SOFTWARE

The software is optimally adapted to the prevailing operating and service data. These include:

- Charge size, measuring point geometry, load data from electronic weigher, etc. as well as others.

Special requirements can also be taken into account, such as:

- Special alarms, actuation of external actuators
- Presentation of external plant parameters in the visual display system, etc.

INCLUSION OF EXHAUST STEAM LOSSES

Exhaust steam losses occurring during the mixing process are compensated in accordance with temperature and plant conditions via a variable exhaust steam curve.

Optional evaluation of the mixer flow and other values of relevance for the customer

COOLER/CONTINUOUS-FLOW MIXER

Integration of preliminary humidification in continuous cooling lines

Control of humidification in continuous-flow mixers through the use of modern, low-wear sensors and high-quality injector nozzles (water / air) for uniform humidification in the continuous process

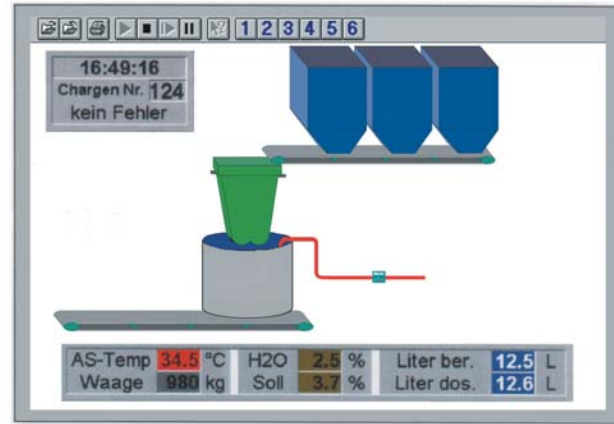
The FS CC 6 PLC system can be used in all applications, including totally independent operation of up to four mixers / coolers of different sizes and capacities.

Moisture control in
moulding sand preparation
FS-CC 6 SANDSTAR PLC

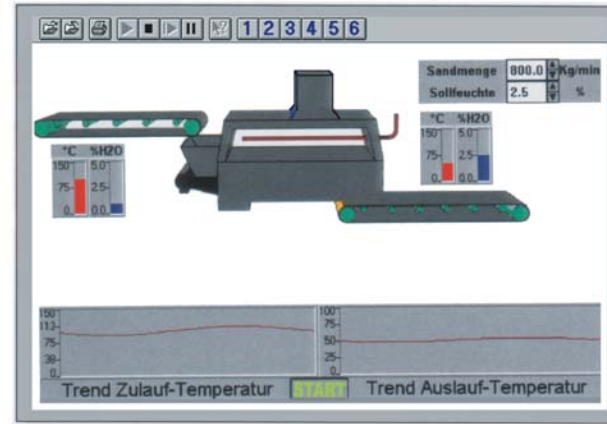
Moulding
sand preparation



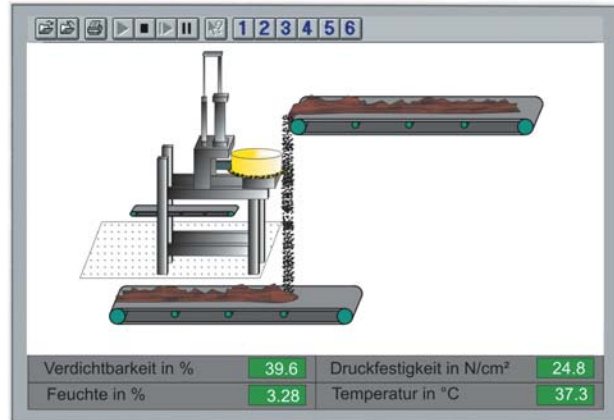
Modern systems and visualization software for ...



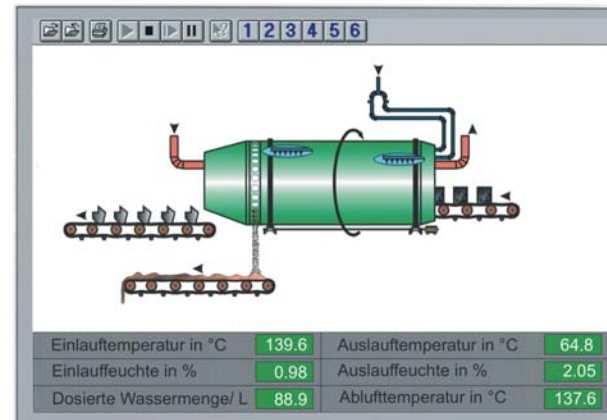
... controlling humidification in up to four batch mixers of varying size and capacity



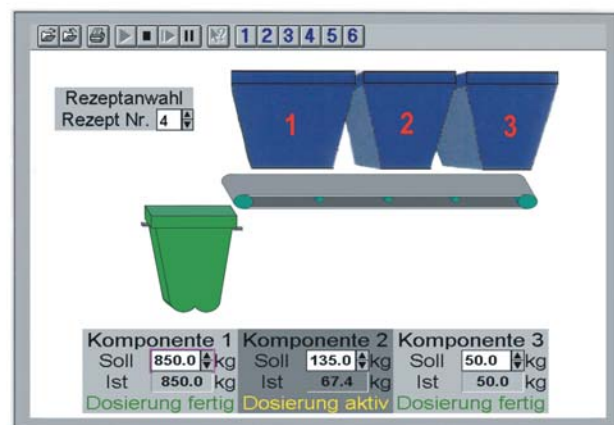
... controlling humidification in continuous preparation and cooling lines



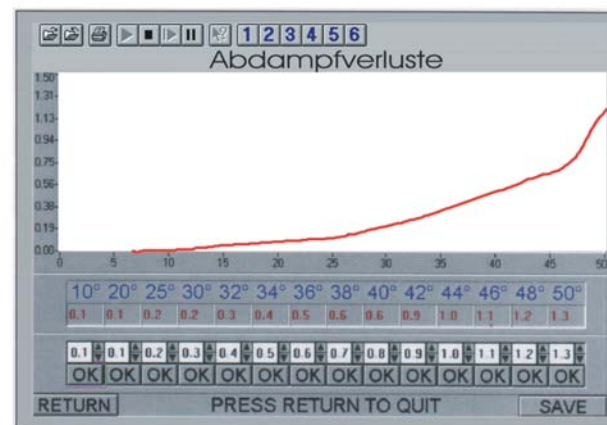
... testing the final sand through determination of compactability with optional determination of moisture, temperature, shear strength or compression strength



... instrumentation of cooling drums



... weighing batches and components with modern electronic weighing systems as the prerequisite for the precise addition of water



... evaluation and presentation of measured values; the illustration shows an exhaust steam curve so that moisture loss en route to the moulding machine can be taken into account in the calculation

Sensor systems



Moisture sensors in a whole variety of forms and using different technologies for installation in tanks, on conveyor belts or in mixer (depending mixer – tools in the wall or bottom)



Temperature sensors: with contact (PT 100) and without contact (infrared), also as handheld devices, for all temperature measurement situations



Water metering elements for addition of precisely metered quantities in intermittent and continuous processes



Weighing equipment for upgrading tanks and silos to optimize batch processes, including belt weighers



Level indicators for monitoring the flow of material in tanks and silos, in many different versions

Customized designs to meet your special requirements, as well as complete mixer and cooler control systems, pneumatic injection devices for bentonite