NETZSCH

Proven Excellence.

NETZSCH Mill Control Systems

Everything under control with real-time monitoring of your process parameters

Business Unit
GRINDING & DISPERSING

NETZSCH PLAIN

Proven Control with Pushbuttons and Digital display

The mill can be operated quite safely by means of robust pushbuttons, rotary switches and selector switches. A frequency inverter allows stepless control of the agitator shaft speed.

The essential operating parameters, such as the agitator shaft speed and current power consumption of the machine, are shown on a digital switchable display.

The pressure at the product inlet of the mill as well as the product temperature are monitored and displayed by means of a contact manometer and contact thermometer.

Control:

- Mill and pump on / off
- Mill and pump fast / slow
- Emergency stop
- Selector switch for switching the digital display from agitator shaft speed to pump speed or current power consumption of the mill

Features:

- Hardware control
- Control of frequency inverter via digital signals
- Operation via pushbuttons
- Values via digital display

Displays:

- Switchable, digital display
- Agitator shaft speed [min^{-1}]
- Digital display of the current power consumption [W] of the mill
- Digital display of the pump speed [1/min] (electromechanically driven pumps only)
- Barrier fluid display (level*, pressure*)
- Display of product outlet temperature via contact thermometer*
- Display of product inlet temperature via thermometer*
- Display of product pressure via contact manometer*

Monitoring:

- Product temperature and pressure are monitored by:
  - Contact thermometer with MAX shut-off contact*
  - Contact manometer with MIN / MAX I / MAX II-shut-off contact*
  - Barrier pressure system: pressure, fill level, temperature

*Measurement point with local display

NETZSCH BASE

Functional Monitoring & Control with Pushbuttons, Digital Disp

The mill can be operated very intuitively using robust pushbuttons, rotary switches and selector switches. A frequency inverter facilitates continuous regulation of the agitator shaft speed.

The essential operating parameters, such as the agitator shaft speed, current power consumption of the machine or the energy input are shown on a digital switchable display. In addition, the control system has a set of fault lights to clearly indicate possible critical operating conditions.

The pressure at the product inlet of the mill, as well as the product temperature, are monitored and displayed via a contact manometer and contact thermometer.

In addition, NETZSCH BASE is equipped with an automatic screen cleaning sequence. This means that when a limit value for the product pressure is exceeded, the feed pump stops briefly, thus relieving the load on the separation device.

Control:

- Mill and pump on / off
- Mill and pump fast / slow
- Emergency stop and kWh meter reset
- Run / rinse selector switch (10 min. pump and mill on, with min. speed and automatic shut-off)

lay and Indicator Lights

Features:

- Hardware control
- Control of frequency inverter with digital signals
- Operation via pushbuttons
- Digital displays
- Error message via signal lamps

Automatic System:

- Automatic screen discharge sequence (when the product pressure exceeds a certain value, the feed pump stops briefly and triggers a discharge of the mill)

Display:

- Digital display of the speed of the agitator shaft [min^{-1}] and the pump [min^{-1}] (only for electromechanically driven pumps)
- Digital kWh meter to record the energy input [kWh] with temporary display switchover to current power display [kW]
- Barrier fluid display (fill level*, pressure*)
- Green signal lamps (mill / pump operation)
- Red signal lamps to indicate malfunction (flash rate control via mini-PLC)
- Display of product temperature / product pressure via contact thermometer*

Monitoring:

- Malfunction lamp set (red) to indicate limit values have been exceeded or undershot, e.g.
  - MAX product pressure
  - MAX product temperature
  - Process end
  - MIN barrier fluid pressure
  - MAX barrier fluid temperature
  - MIN barrier fluid level
  - Refill barrier fluid
- Defined process shut down via a variable kWh preset value
- Automatic screen cleaning sequence: If the product pressure limit value is exceeded, the feed pump stops briefly and triggers a discharge of the separation device.
- Monitoring of the product temperature and product pressure via:
  - Contact thermometer with MAX shut-off contact*
  - Contact manometer with MIN / MAX I / MAX II shut-off contact*

*Measurement point with local display

NETZSCH *Iris*
The professional Concept for Monitoring & Control

Based on a 12" color graphic display with multi-touch function, NETZSCH *Iris* facilitates monitoring and control of the process flow.

In addition to intuitive adjustment of the machine's operating parameters, other functions are available, such as batch logging and formulation management, energy consumption estimation, machine availability display, preventive and operational maintenance control, as well as historical data, combined with real production time and trend graphs.

An integrated error management system provides guidance and assistance for problem solving.

Features:

- Simple and self-explanatory menu navigation
- PLC control
- Internal Profinet communication via all machine components
- Operation via 12" multi-touch display
- Stand-alone PC terminal
- Operating description in the terminal (Help function)
- Extended user rights management
- Multi-language function

Monitoring:

- Monitoring of process values with shut-off / information function
  - MAX product pressure
  - MAX product temperature
  - Process end
  - MIN barrier fluid pressure
  - MAX barrier fluid temperature
  - MIN barrier fluid level
  - "Refill" barrier fluid

Anzeige:

- Display of agitator shaft speed [min^{-1}] and peripheral speed [m/s]
- Display of kW (idle), kW (net) and kW (Total), kWh meter to record the energy input
- Optional barrier fluid (temperature)
- Display of pump speed
- Display of product temperature via a temperature sensor
- Display of product pressure via a pressure sensor
- Display of product pressure via a manometer
- Display of product throughput (flow meter required)

Controls:

- Mill ON / OFF
- Stepless speed adjustment of the agitator shaft via a frequency inverter
- RINSE / RUN selector
- Emergency stop
- Input of calculation parameters:
  - Batch size
  - (Desired number of cycles)
  - Recording of the baseline
- Selector switch optional for remote operation (via HMI)
- Pump ON / OFF
- Stepless adjustment of the pump speed via a frequency inverter (for electromechanically driven pumps)
- Stepless stroke adjustment via a proportional valve (for pneumatically driven pumps)

USER INTERFACE FOR SELECTION OF THE PROCESS PARAMETERS

- Control of the main process variables via the menu item "Operation Panel"
- Display as dashboard or flowchart
- Trend curve with machine or process parameters: mill speed, mill output, product temperature, product pressure and feed rate

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User In

MAINTENANCE FUNCTION

- Display of preset or customer-specific maintenance intervals, which regularly informs the user about relevant and important maintenance dates
- Detailed display of the maintenance message for the affected machine components as well as progress bar since last maintenance
- PLC status display regarding firmware, communication status, etc.

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HISTORY FUNCTION

- Log list of all past alarms and warnings
- Ranking of alarms within a defined time period
- Display of process parameters by means of a process line diagram
- Display of process values in a dashboard if the machine comes to a standstill due to an error
- Chronological listing of the last 30 batches and detailed display of the production parameters
- Availability display for machine utilization incl. maintenance times

FORMULATION MANAGEMENT

- Formulation management for the input of up to 99 formulations, with specific individual machine parameters, depending on the product and production process
- Input of preset values (mill/pump speed, pressure and temperature limits, power thresholds)
- The machine is automatically ramped up to these process values at start-up

NETZSCH *Iris*

and the Extended Options for Process Monitoring

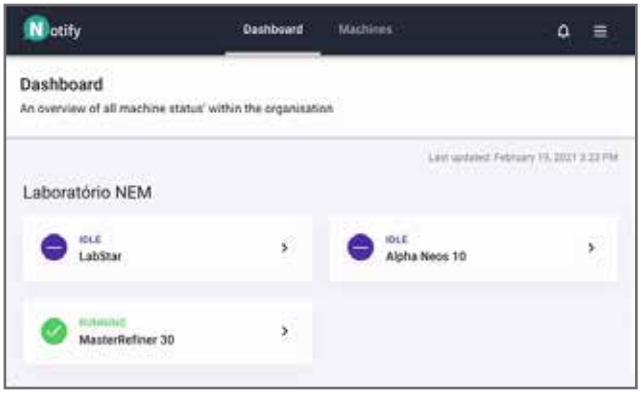
Notify

Notify is a software-based product with which "real time monitoring" of machine and process variables, i.e. a display in real time, can be realized on a computer, mobile phone or tablet.

Notify is independent of the operating system of the end device. The basic requirement is an Internet connection and a corresponding connection to the machine via a gateway, accessible via the most common web browsers. This is already available on NETZSCH machines with the state-of-the-art *Iris* control system.

Your Benefits:

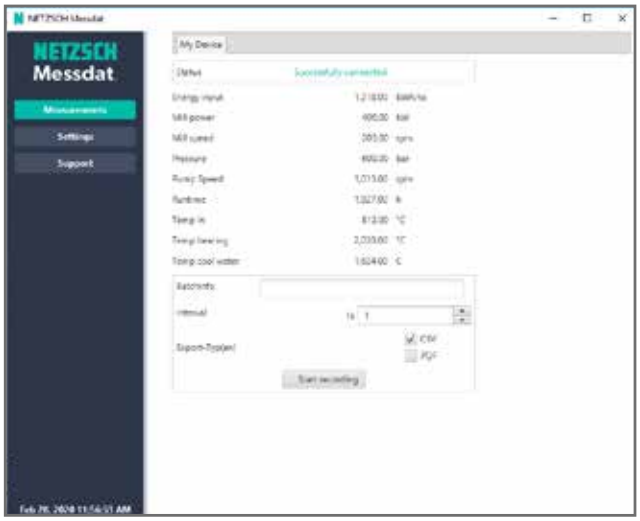
- Less waste (raw materials)
- Fewer operators required per machine
- Less downtime due to faster maintenance reaction times
- Improved performance due to data analysis
- More transparency about machine activities
- Less damage and breakdown of machines, etc.



MessDat

MessDat is a solution for data acquisition from your machine via an Ethernet connection.

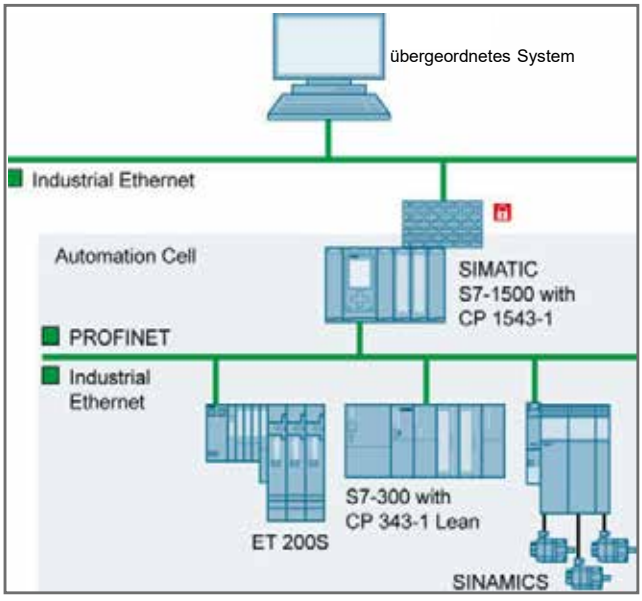
You receive an overview of the measurement data, such as the power consumption of the agitator drive, the speed of the mill and the pump, product pressure, product outlet temperature, energy input and running time. This can be expanded to up to ten measured values. You can also export all measured values with date and time as a CSV or PDF file. In addition, the sampling interval for data acquisition can also be set individually.



Remote Control

The connection to the higher-level process control system, NETZSCH Remote Control is the optimal solution for controlling and monitoring your production machines.

A connection is possible via all common BUS systems (e.g. Ethernet, Profibus).



Remote Maintenance

With NETZSCH Remote Maintenance, your machine is prepared for remote maintenance service via the PLC. Following authorization by the customer, a NETZSCH technician can access the PLC of the machine and make necessary changes or analyze and correct existing errors at low cost.

- Hardware in the control cabinet
- Installation and wiring of the components
- Guidance for the customer on integration and parameterization of the machine in the network
- Remote maintenance & adjustments

The NETZSCH Remote Maintenance service is available at the following times (excluding public holidays)::

Mon - Thu	8 a.m. - 4 p.m. (CET)
Fri	8 a.m. - 12 p.m. (CET)

The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 3,800 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

Proven Excellence.

Business Unit Grinding & Dispersing – The World's Leading Grinding Technology

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