



Tray Dryer with 7" Touch LCD and DAQ Software (SMT-HT-53)

Convection dryers are often used for drying solids in food technology. The SMT-CP-112 can be used to investigate and demonstrate the process of convection drying of granular solids. Four corrosion resistant removable plates are available for drying the solid. They are placed in a drying channel.

The plates containing the solid to be dried are exposed to an air flow in the channel. The air flow heats the solid and also removes any moisture released. Air velocity can be adjusted by the speed of a fan. An adjustable heater allows the heating of the air. The transparent door in the drying channel allows the drying process to be observed.

A digital balance can be used to follow the changes in weight of the solid due to evaporation or vaporization of moisture during operation.



The air temperature and the relative humidity of the air are measured and digitally displayed by a single combined temperature and humidity sensor before and after the air flow passes over the solid. A further sensor measures the air velocity.

The relevant measured parameters (changes in weight, humidity, temperature, air velocity) can be transferred directly to a PC, where they can then be further processed.

The unit has 7-inch Touch LCD display for visualization of process and the measurements. The Unit is also connected to Software for computer connectivity and data analysis. The Touch screen and computer software is included in the package.

The unit has floor mount steel structure with base locking wheels.

All parts and components are imported. This System has digital instrumentation for flow, temperature and Humidity measurements.

TECHNICAL SPECIFICATIONS

Specifications:

- Complete stand-alone unit to demonstrate and measurement of Tray Drying Process in Chemical Engineering Laboratory.
- Touch LCD 7" with GUI Interface for better monitoring and accurate measurement of Plant variables.
- DAQ Software for PC Connect and Data measurement and Calculations.
- Drier for investigating convection drying of solids
- Drying on 4 corrosion resistant plates in a drying channel with an air flow
- Adjustment of air velocity via speed of fan
- Air heating with controlled heater
- Digital balance for measuring the change of weight during drying
- 1 combined sensor for measurement of humidity and temperature before and after the solid sample
- 1 air velocity sensor
- ESOLS software for data acquisition via USB under Windows 7, 8.1, 10
- Digital Instrumentation for accurate measurement.

TECHNICAL SPECIFICATIONS

Technical Data:

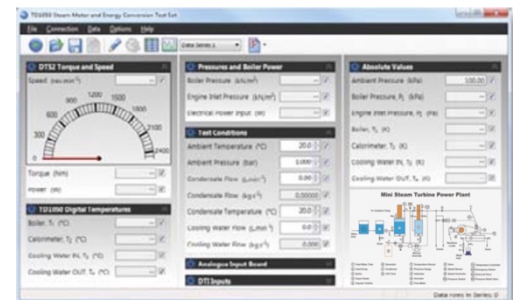
- Drying Channel:
 - Powder Coated Mild Steel.
 - Length: 2350mm including Fan
 - Internal Dimensions: 350*350
 - Fan:
 - Power: 35W
 - Max. Output: 700m³ /h
 - Max. Speed: 950min⁻¹
 - Heater:
 - Power: 0 to 6750W
 - With adjustable temperature limiter (controller)
 - Overload protection
 - Overheating protection included.
 - Balance:
 - Type: Electronic Digital
 - Measuring Rang: 0 to 10,000g
 - Resolution: 0.1g
 - Measuring:
 - Flow Rate:
 - 0 to 2.5m/s
 - Temperature:
 - 0 to 125°C
 - Qty=2
 - Air Humidity:
 - 0 to 100%
 - QTY: 2
 - Measuring Display
 - 7 inch Touch LCD With GUI (Graphical User Interface)
 - Voltage Supply:
 - 400V, 50Hz 3Phase.
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- Digital Instrumentation
 - Capability to modify according to end user.
 - Can be used in Research Purposes.

SOFTWARE SPECIFICATIONS

SOFTWARE SPECIFICATIONS:

ESOLS (Engineering Education Equipment) is providing a complete PC Suite (Software) for data acquisition, Security and for control.

- Graphical visualization.
- Security mechanism for login.
- DAC ES-FL-17(Data Acquisition card) module supported with software.
- Analog and Digital I/O ports on DAC (ES-FL-17).
- I/O ports for retrieving and sending data from trainer.
- Indications for Digital and Analog I/O ports.
- Controlling mechanism for trainer.
- Data Logging Included.
- USB Connected
- Compatible with Windows 7,8.1,10.
- Plug and play.
- Installing tutorials for software.
- Software USB.



Experimental Data

Learning Objectives/Experiments:

- Influence of air temperature and humidity on drying intensity
- Plotting of drying curves with constant external conditions
- Determination of drying rate with different air parameters and different solid properties
- Evaluation of drying processes using energy and mass balances