

Optimised Drying/Curing Process on Carpets

A new control concept for drying- and curing machines for carpets is based on the well proven PLEVA TDS 95 and FS91 sensors and the advanced CINTEX control systems. The new developed software is analysing the actual conditions of a carpet dryer and is adjusting speed of the machine and speed of the exhaust fan automatically.

A new concept of software was developed for a reliable and accurate control of drying and curing processes on carpet dryers.

The requirement concerning control functions is the detection of the actual status of the machine and the necessary fabric parameters to control the drying/curing process with low intervention by an operator.

The new capabilities of this software concept have been proved in the practical field of the textile industry.

The new software is able to detect the actual temperatures of the drying chambers, the carpet surface temperature and additional parameters of the dryer as well.

This information is used to get an uniform continuous drying/curing result over the length of the batch. The extend of the drying/curing level is changeable

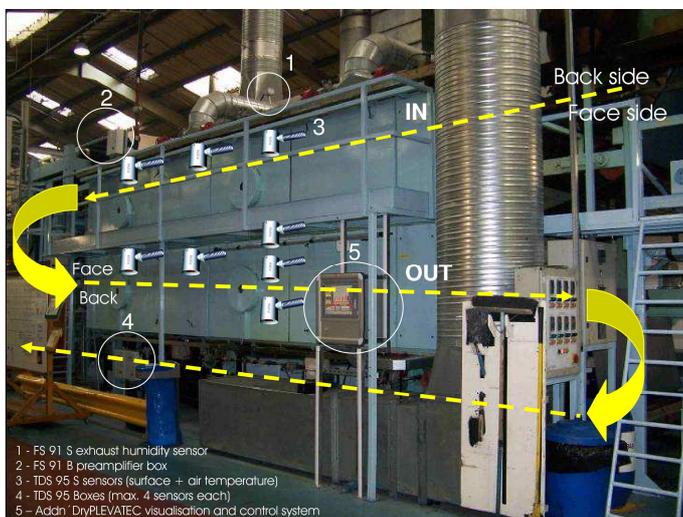


Fig. 1: Carpet dryer

by varying the set points. The fabric is controlled inside in the dryer by **up to 36 sets of fabric temperature sensors TDS 95 S** depending on the controller level.

These sensors are used to control the temperature profile by adjusting the speed of the machine during the drying/curing process.

The result is an extremely uniform drying/curing level over the length of the batch.

In addition the PLEVA exhaust humidity sensor FS 91 is used to control the frequency controlled exhaust fan automatically.

Advantages and Benefits

- ◆ Low intervention by operator required
- ◆ Increase of productivity of up to 30 % at highest fabric quality level
- ◆ Significant energy saving of up to 25 %
- ◆ Uniform drying/curing level of the carpet - from beginning to the end

For existing and new carpet dryers

Energy saving

Productivity increase

Quality

Tufting and Woven Carpets



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Fig. 3: FS91 exhaust humidity sensor

*Optimised
drying/curing*

*Dwell time
in seconds*

*Machine speed
control*

Tailor-made solutions

Control of Drying/Curing Process on Carpets

Carpet Dryer

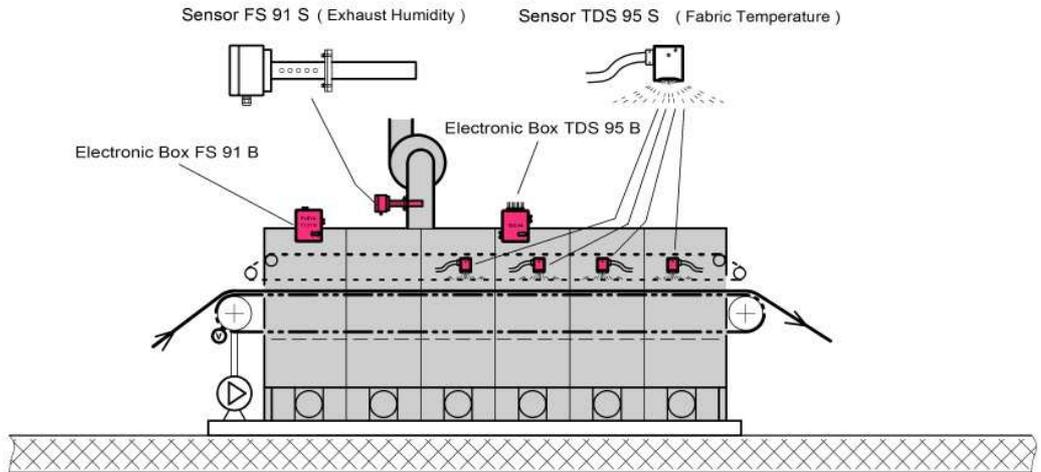


Fig. 2: Carpet belt dryer with measuring and control system

Problems in Drying/Curing

Frequently arising problems, which affects the drying/curing process:

- ◆ Uneven wet pick-up over length and width of the carpet in the inlet of the carpet dryer
- ◆ Uneven drying/curing results over the total width of the carpet

Standard Components

The following parts are required to control the drying process on a carpet dryer with the new control concept:

HeatSetCOMPACT CP35
Up to 4 x TDS95 Sensors
+TDS Box

For energy saving:
FS91 Sensor + FS91 Box

Concept of Control

The basic information of the actual situation in the dryer is measured by four sets of PLEVA fabric temperature sensors TDS95. They are installed inside the dryer, above of the conveyor belt.

The TDS 95 sensors are measuring the air temperature inside the dryer as well as the surface temperature of the fabric and detect the temperature profile during production to optimise the drying or calculate the dwell time in seconds to get defined curing conditions.

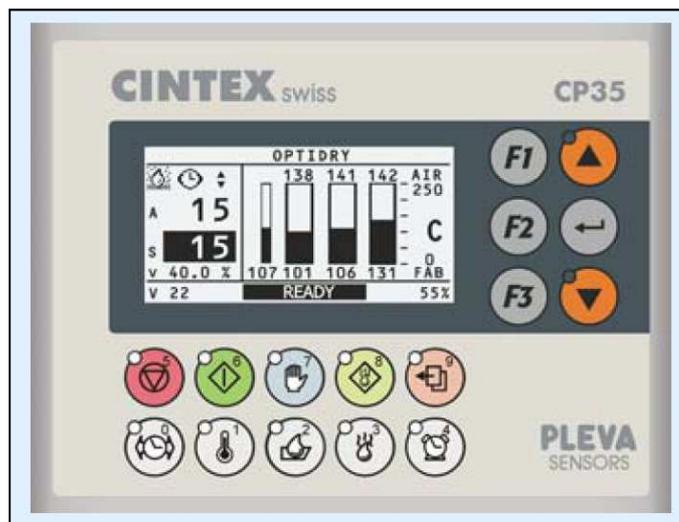


Fig. 5: Low Cost CP 35 Controller



Fig. 4: TDS 95 Sensors (Profile)

The controller CP35 is equipped with the a new software to control the drying process on a carpet dryer for a perfect result. The controller is able to detect the actual situation in the dryer in

connection with the PLEVA sensors. The new software is supervising and controlling the drying process by varying the speed of the machine to ensure an even drying result.

Different Controller level:

- HeatSetCOMPACT CP 35**
- HeatSetCIMATIC PP70**
- Addn' Dry PLEVATEC**
- Module DryControl
- Module AddControl