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.
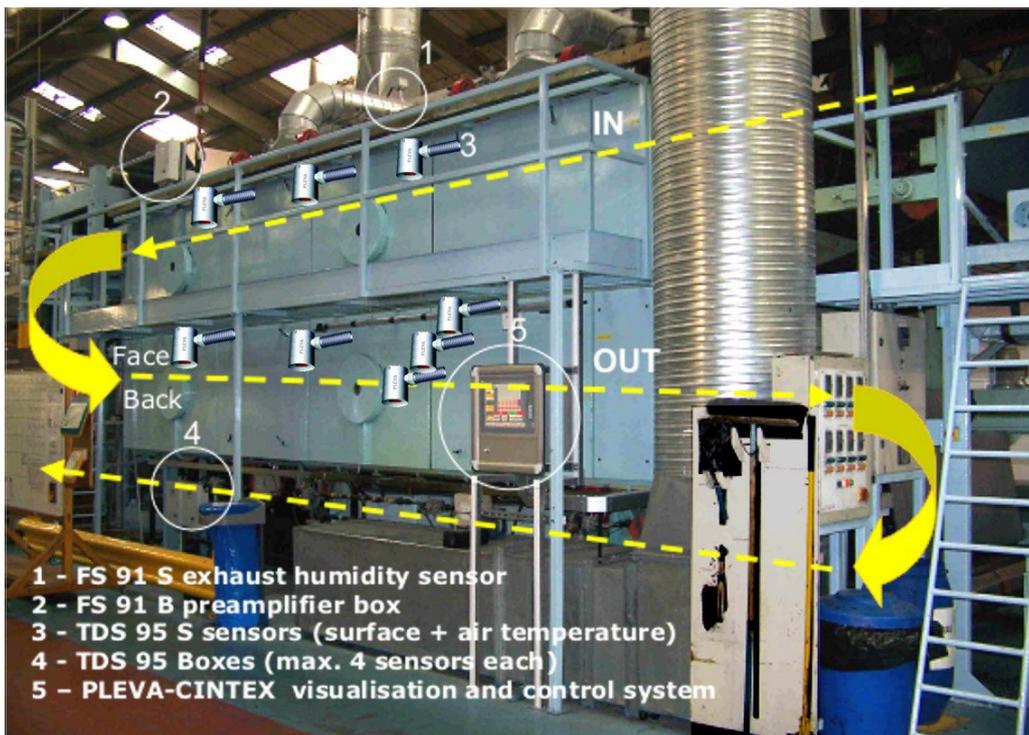

1 - FS 91 S exhaust humidity sensor
2 - FS 91 B preamplifier box
3 - TDS 95 S sensors (surface + air temperature)
4 - TDS 95 Boxes (max. 4 sensors each)
5 – PLEVA-CINTEX visualisation and control system

Fig. 1: Carpet dryer

For existing and new carpet dryers

Energy saving

Productivity increase

Protection on Quality

Tufting and Woven Carpets

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 by varying the set points. The fabric is controlled inside in the dryer by fabric temperature sensors PLEVA TDS 95 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 exhaust humidity sensor FS 91 is used to control the 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

In this edition

Control of Drying/Curing Process on Carpets

Carpet Dryer

Sensor FS 91 S (Exhaust Humidity)   Sensor TDS 95 S   (Fabric Temperature)

Electronic Box FS 91 B   Electronic Box TDS 95 B

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

Fig. 3: FS91 exhaust humidity sensor

*Optimised
drying/curing*

*Dwell time
in seconds*

*Machine speed
control*

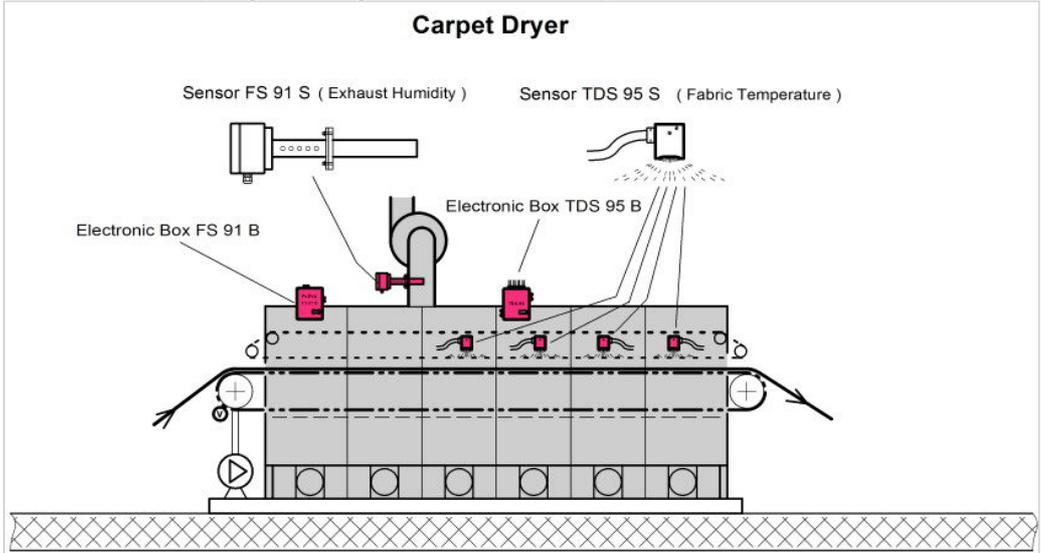*Tailor-made solutions*

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:

HeatSet CIMATIC PP100
in connection with:
- up to 30 x TDS95 Sensors
  for temperature control
- FS91 Sensor + FS91 Box
  for exhaust control

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: Monitoring and Control system HeatSet CIMATIC PP100

Fig. 4: TDS 95 Sensors (Profile)

The controller PP100 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:

HeatSet COMPACT CP 35
HeatSet CIMATIC PP70/100
Addn´Dry PLEVATEC
- Module DryControl
- Module AddControl