News

No. 11

PLEVA

SENSORS AND CONTROLS

Optimized Drying/Relaxation/Tumbling Process on Terry Towelling

The extremely cost efficient new control concept for dryers and tumblers for terry towelling is based on the well proven PLEVA TDS 95 and FS 91 sensors and the advanced CINTEX control system. The newly-developed software is analysing the actual conditions of a dryer automatically and is adjusting the machine speed and exhaust fan.

Relax-/Loop Dryers, Stenter and Conti - Tumbler

The concept of software was developed for a reliable and accurate control of drying and tumbling processes for terry towelling.

The requirements concerning control functions are the simple settings of the necessary parameters to control the drying/tumbling process with low intervention by an operator.

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

Fig. 1: Terry Towelling in a relax dryer

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

This information is used to get an uniform continuous drying /tumbling result over the length of the batch.

The extend of the drying/ tumbling level is changeable by adjusting the set point. The fabric is monitored inside in the dryer by three sets of fabric temperature sensors TDS 95 (see Fig.2) .

These sensors are used to control the temperature profile by adjusting the speed of the machine during the drying/tumbling process and therefore moving the defined drying point to the end of the machine to avoid overdrying of the fabric.

In addition,the PLEVA exhaust humidity sensor FS 91 is used to control the frequency controlled exhaust fan auto-

Soft Handle

Energy Saving (gas / electricity)

Higher Productivity

Advantages and benefits of the new control conception

- Low intervention by operator required
- Increase of productivity of **up to 33 %** in same high quality
- Significant energy saving (gas and electricity) of **up to 25 %**
- Uniform drying level from beginning to the end
- Soft handle of terry cloth

In this edition

PLEVA GmbH
Rudolf-Diesel-Strasse 2, D - 72186 Empfingen / Germany
Tel.: +49 (0) 7485 -1004, Fax: +49 (0) 7485 -1009

info@pleva.org

www.pleva.org

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Control of Drying/Tumbling on Relax or Loop Dryers for Terry Cloth

Fig. 2: FS 91 Exhaust Humidity Sensor

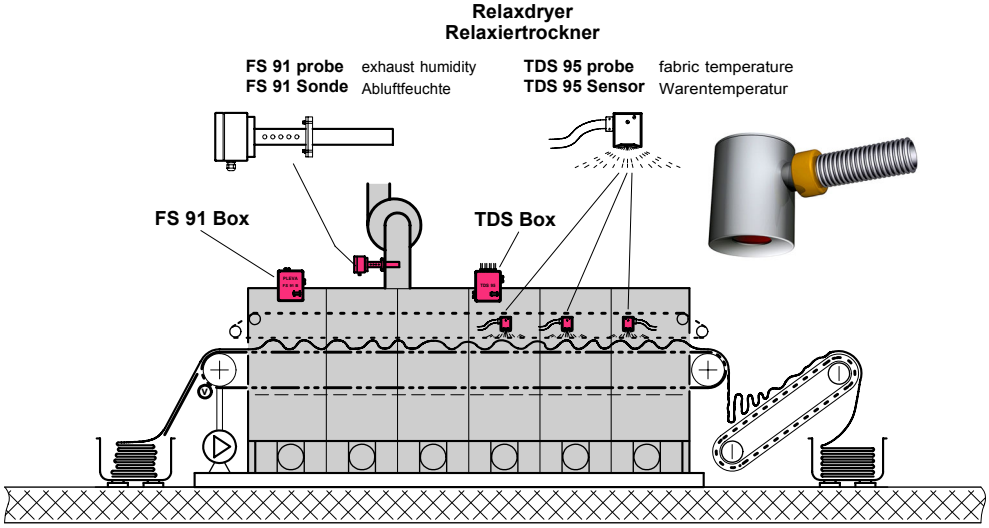


Fig. 3: Relax dryer for terry towelling

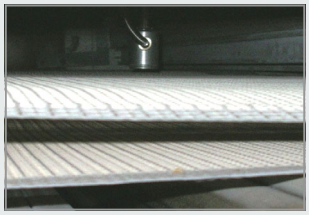


Fig. 4: TDS 95 S measuring through the conveyor belt

Problems in drying/tumbling

Frequently arising problems which affect the drying/ tumbling process:

- Uneven wet pick-up over length and width of the terry towels in the inlet of the dryer/tumbler
- Harsh handle due to over drying and flattened loops during the open width process

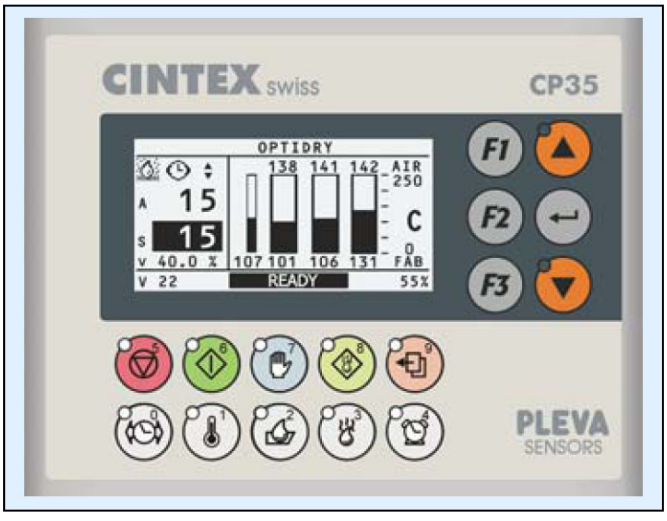
Components

The following parts are required to control the drying process on a relax dryer or conti tumbler with the new control concept:

HeatSetCOMPACT (CP35)

3 x TDS 95 S Sensors
+TDS 95 B (Electronic Box)

1x FS 91 S Sensor
+ FS 91 B (Electronic Box)



COMPACT Controller CP35

The controller CP35 is equipped with a special software to control the drying process on a relax or loop dryer for a perfect result. The controller is able to detect the situation in the dryer in connection with the PLEVA sensors.
The drying process is then controlled by varying the speed of the dryer.

Concept of control

The basic information of the actual situation in the dryer is measured by three sets of PLEVA fabric temperature sensors TDS 95. They are installed inside the dryer above the conveyor belt (Fig. 4).

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. The setting is defined in

- surface temperature of the terry towelling
- short dwell time in seconds (4 - 6 sec)

The short dwell time is used to level out the unevenness in drying over the width and/ or to dry the different thickness of the towel due to the bordure as well.

Fig. 5: Tumbled terry towelling

Headquarter and Manufacturing:
PLEVA GERMANY
D-72186 Empfingen-Germany
E-Mail: info@pleva.org
Internet: www.pleva.org