

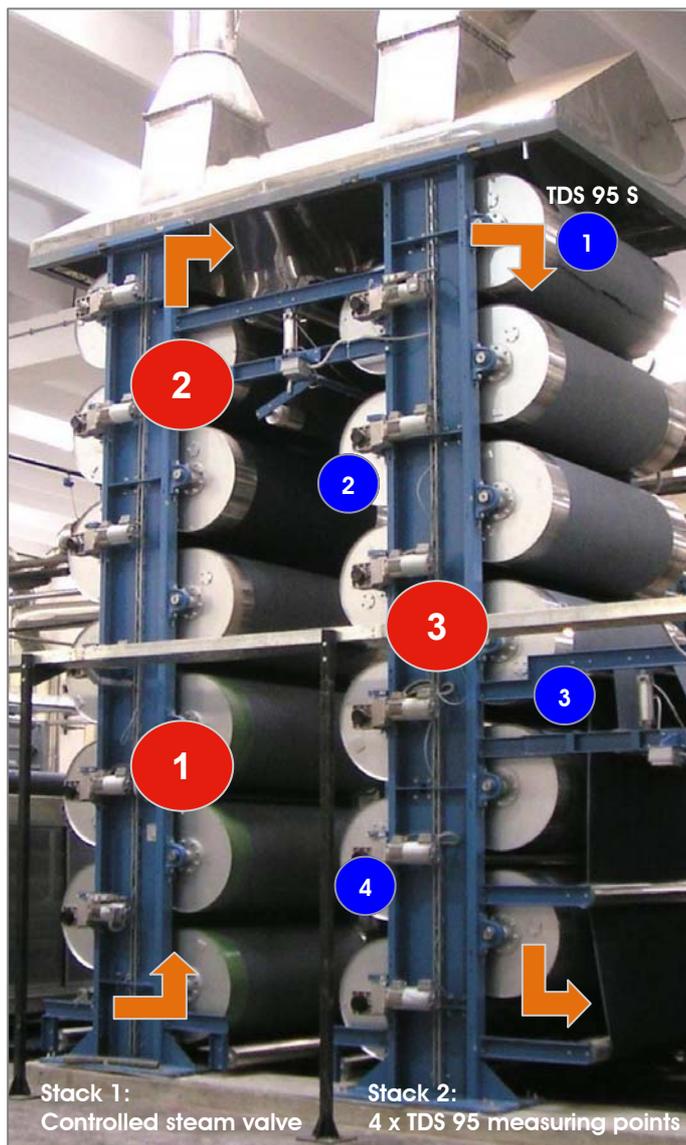
## Automatic Control of Drying Cylinders

The drying based on contact drying (drying cylinders) is probably the most wastefully drying process for textile webs. This impression is based on observations from practice worldwide. Due to process technological reasons most of the dryers are running on an "Uncontrolled Over Drying Strategy" which leads to extremely high energy costs in comparison to the theoretically needed energy amount to evaporate the water on the fabric.

PLEVA-CINTEX has developed new control algorithms using thermo dynamic fabric temperature sensors TDS 95. The sensor is measuring the thermal radiation exchange between the fabric surface and the sensitive area of the sensor lens. Four TDS 95 measuring points on the last stack of the drying cylinder will control the steam valves of the dry cans. This new technology is leading to an "Controlled Defined Over Drying" for minimum energy consumption, maximum productivity and best quality of drying.

### Control Conception:

The drying phases on dry cans are nearly similar to convection drying on stenters or hotlues. The calculation of a defined dwell time is based on monitoring the heating curve of the fabric web on the last stack (4 x TDS 95 measuring points).



Dry cans are heated up with saturated steam. The temperature is between 140 - 170 °C at a steam pressure of 3,5 - to 7 bar.

### Components

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

- 4 x TDS 95 sensors with electronic box



- CINTEX Controller HeatSet COMPACT



- Steam valve with activator

## Retrofit Package for sustainable Cost Reductions

1

Water vapour occurs on the contact side and is then diffusing through the textile.

2

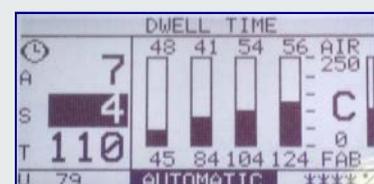
The fabric is heated up to wet bulb temperature.

3

If the capillary humidity is completely evaporated the fabric surface temperature will increase again.

1 2 3 4

4 x TDS 95 measuring points



**Customer Benefits:**

*Significant Energy Saving*

*Productivity Increase*

*Quality Improvement*

*Return of Investment "ROI"*

*< 5-7 months*

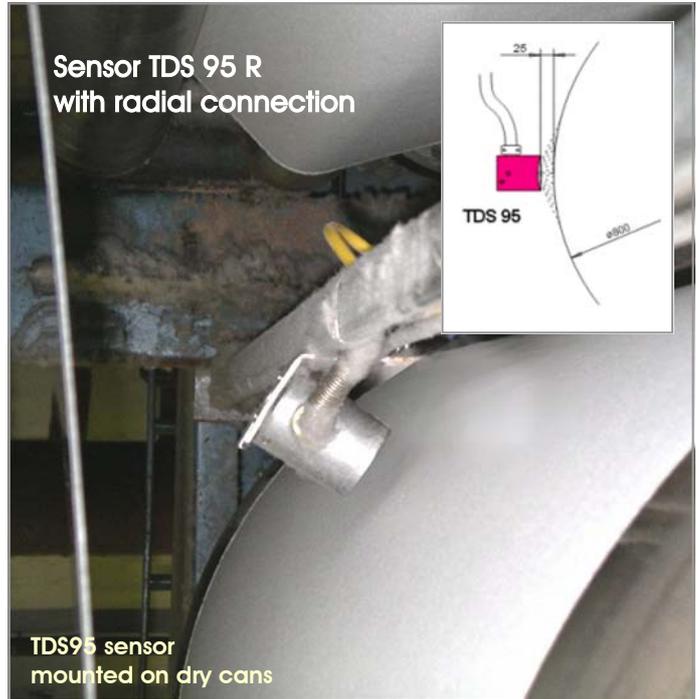


**TDS95 sensor**

The unique thermo dynamic sensor TDS95 is designed for high thermal conductivity and therefore quick response.

The sensor is unrivalled robust and is showing no condensation or sedimentation on the lens.

The TDS95 sensor is patented by PLEVA GmbH



**TDS95 electronic box**

To control drying / curing process on cylinder dryers two °C temperature information of each sensor are taken into account and integrated in the control algorithms.

FABRIC [°C]			
61	101	119	135
PROBE/AIR [°C]			
57	42	63	49

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**CINTEX controller CP35 HeatSet COMPACT**

Automatic control of drying / curing process on cylinder dryers.

The controller CP35 is equipped with the new software with auto setting to control the drying process by varying the steam valve position.

