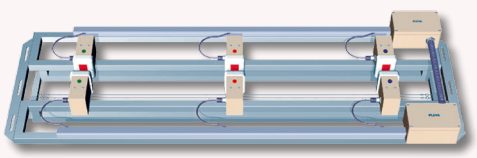
PLEVA
Sensors and Controls

Continuous Dyeing Process

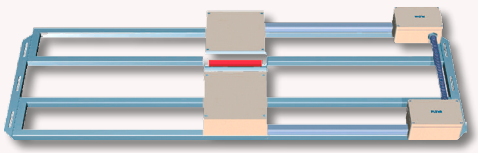
PAD-DRY • PAD-STEAM
COLD-PAD-BATCH

PadderControl
CIMATIC

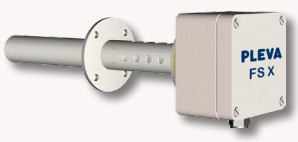


Application moisture AF310

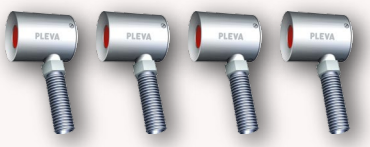
CIMATIC PadderControl



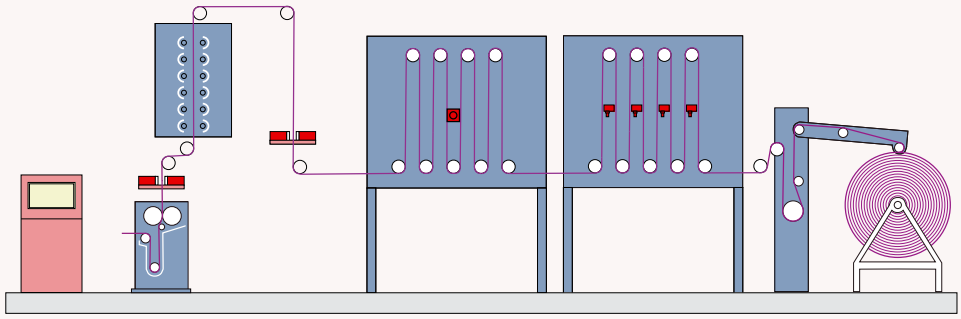
Intermediate moisture RF 120



Air humidity FSX



Fabric temperature sensors TDS



Application moisture

Intermediate moisture

Thermo fixation

PLEVA

PadderControl
CIMATIC

PadderControl

Type PadderControl CIMATIC

FEATURES OF PRODUCT

- Control of side variations to the centre pick-up
- Online monitoring and data recording
- Process data evaluation via Ethernet
- Suitable for new and existing padder

BENEFIT FOR CUSTOMER

- Uniform dye applicattion on padder
- Avoids shade variations „side-centre-side“ and „start-finish“
- Evaluation of application moisture in percentage % of fabric weight
- Easy operation
- Requires no maintenance
- Short payback time

Measurement and control at dye padder

Dye liquor application at the dye padder

The uniform dye bath distribution over the length and the width of the fabric is essential for a perfect dyeing result on continuous dyeing process Pad-Dry / Pad-Steam and Cold-Pad-Batch.

The system measures online the dye bath pick-up by the microwave measurement AF310 and controls the pressure for left side, rigth side and if required for center on dye padder.

Padder Control System CIMATIC for dye padder and continuous dyeing ranges

Modern colour graphic operating panel with modular PLC system and advanced control software guarantees optimised process control on dye padder and continuous dyeing process.

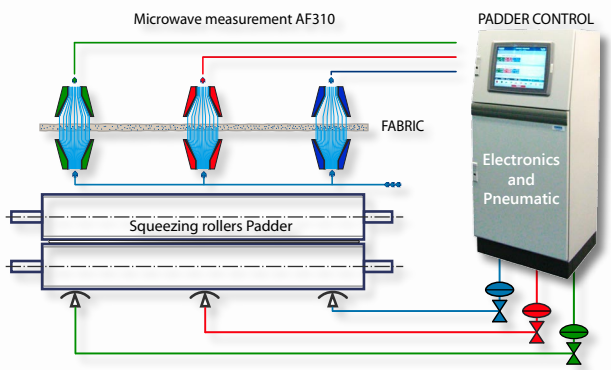
The advanced system use touch screens panel with trend graphic display, data gatering, recipe memory and interfaces to connect to a network by Ethernet.

PadderControl CIMATIC touch panel

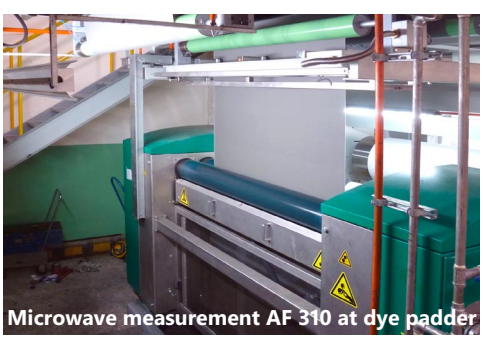
Measurement and control principle of a dye padder

The dye liquor application is measured by the microwave measurement AF310 in PLEVA scale units and is then calculated into percentage of fabric weight by the area weight.

The moisture difference on the edge is shown in percentage to the center. Consequently it's easy to define the tolerance of side pick-up to the centre application and to control continuously.



Principle of the Padder Control system



Microwave measurement AF 310 at dye padder

CIMATIC PadderControl at dye padder

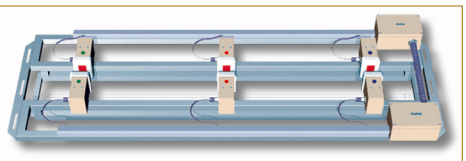
Continuous dyeing process PAD-DRY • PAD-STEAM

PadderControl PLUS

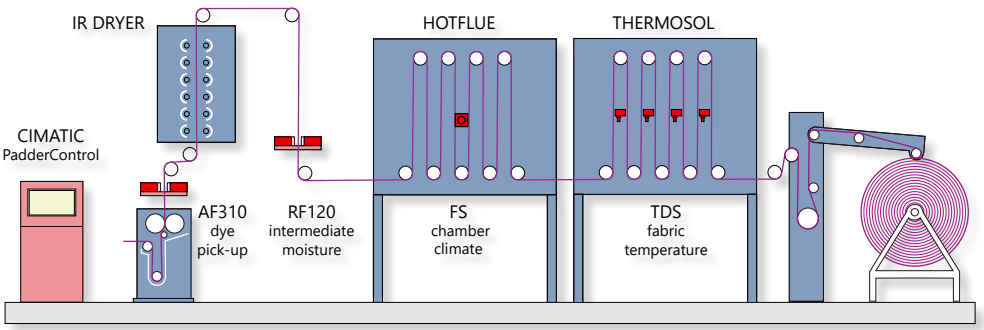
Application moisture at the dye padder
Type AF310

Contactless measurement of application moisture on running fabrics behind the dye padder left side-centre-right side by microwave absorbtion.

The system measures without delay the dye liquor pick-up and controls the pressure for left side, right side and if required for centre on dye padder to avoids shade variation and tailing.



Application moisture sensor AF310

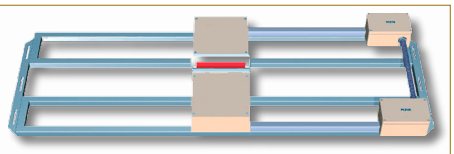


Continuous dyeing range with hotflue and thermosol part

Sensors at continuous dyeing range with hotflue and thermosol part

Intermediate moisture behind IR-Dryer
Type RF120

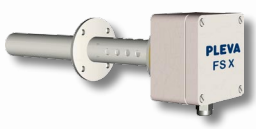
The intermediate moisture is measured with the contactless microwave measurement RF120 to monitor and control the result of pre-drying behind the IR-dryer to avoid migration in the following part of hotflue



Intermediate moisture sensor RF120

Chamber climate/humidity in hotflue unit
Type FS

The chamber atmosphere in the hotflue is measured by the air humidity sensor FS to monitor and control a defined climate in the part of the hotflue.

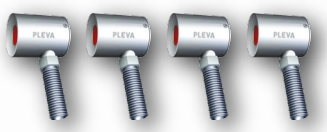


Humidity sensor FS

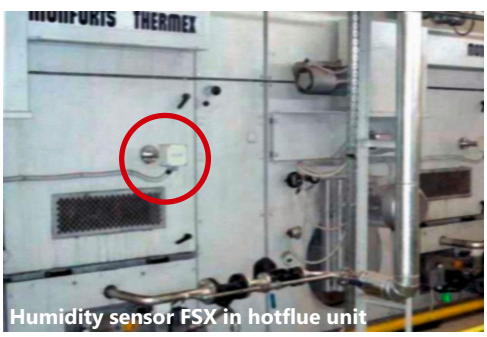
Thermo fixation in the thermosol unit
Type TDS

Each thermosol unit should be equipped with around four sensor over the length and one profile side-centre-side.

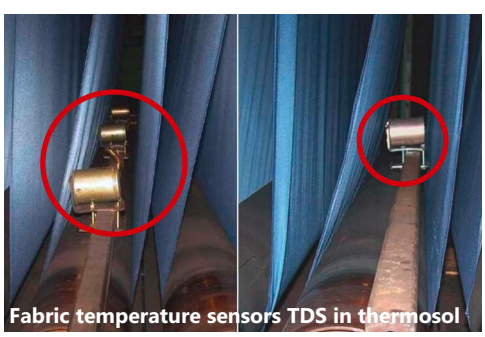
The sensors TDS will monitore the fabric- and the air temperature where the sensors are mounted to calculate the dwell time or curing time.



Fabric temperature sensors TDS



Humidity sensor FSX in hotflue unit



Fabric temperature sensors TDS in thermosol

FEATURES OF PRODUCTS

- Measurements are contact-free
- Measuring non hazardous
- Requires no maintance

BENEFIT FOR CUSTOMER

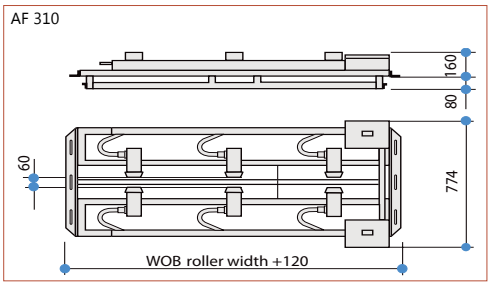
- Complete quality control
- Tolerance control of production specifications
- Calculation of dwell time / curing time for thermosol process

PadderControl
CIMATIC

Technical Data

Microwave measurement

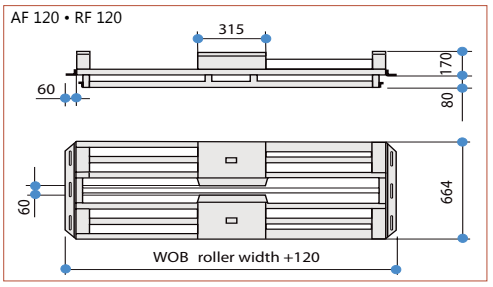
Type AF 310



Sensor AF 310

Ambient temperature sensor	max. 50 °C
Temperature of webs:	max. 50 °C
Measuring range AF 310:	0 .. 25 g H_20/m2 up to 0 .. 5000 g H_20/m^2 (using calibration curve)
Measurement accuracy: not better than	+/- 1 % of measuring range +/- 0.8 g H_20/m^2 absolute
Adjustment time:	inertia free
Frame dimension for:	fabric width up to 5500 mm
Weight approx.:	80 kg (frame width 2000 mm)

Type AF 120 • RF 120

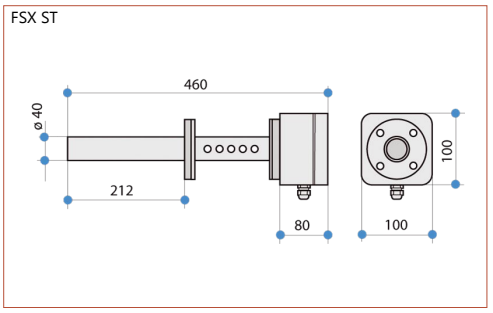


Sensor AF 120 • RF 120

Ambient temperature sensor	max. 50 °C
Temperature of webs:	for type A: max. 50 °C for type B: max. 100 °C
Measuring range AF 120:	0 .. 2000 g H_20/m2
RF 120:	0 .. 200 g H_20/m^2 (using calibration curve)
Measurement accuracy: not better than	+/- 1 % of measuring range +/- 0.3 g H_20/m^2 absolute
Adjustment time:	inertia free
Frame dimension for:	fabric width up to 5500 mm
Weight approx.:	70 kg (frame width 2000 mm)

Air humidity sensor

Type FSX

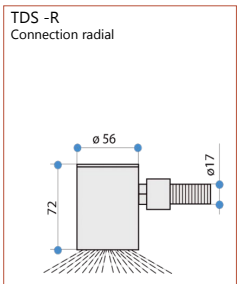


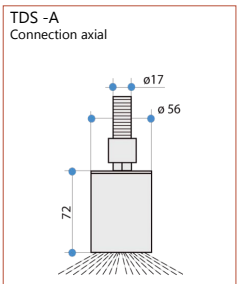
Sensor FSX

Process air temperature:	Type FSX ST: max. 250 °C Type FSX HT: max. 600 °C
Temperature of sensor:	> 700 °C
Heating-up time for sensor:	approx. 20 min
Measuring range sensor: selectable on Process Box:	standard 0 .. 1000 g/kg free scaling
Ambient temperature for instrument preamplifier:	max. 70 °C
Power supply:	24 V DC (+/- 10 %)
Power consumption:	max. 24 VA, max. 1.0 Amps.
Weight sensor FSX ST:	approx. 2.6 kg

Fabric / Air temperature sensor

Type TDS



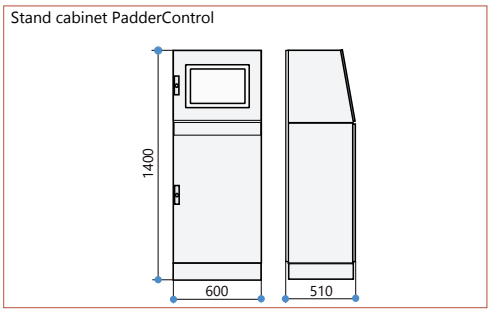


Sensor TDS

Ambient temperature:	
Measuring range 0..250°C:	Type TDS ST-A • TDS ST-R
Measuring range 0..400°C:	Type TDS HT-A • TDS HT-R
Accuracy measuring range:	+/- 1 %
Distance to material:	20..120 mm (optimal 60mm)
Measuring area:	140 mm at 20 mm distance 300 mm at 60 mm distance 550 mm at 120 mm distance
Cable length (standard):	5 m / 7 m / 10 m
Cable length (optional):	13 m / 16 m (other on request)
Weight TDS sensor:	0.5 kg without flexible tube
Weight flexible tube:	0.3 kg per m flexible tube

PadderControl system

Type CIMATIC



PadderControl CIMATIC

Ambient temperature:	max. 50 °C
Power supply:	230 V AC (+/- 10 %), 50/60Hz
Power consumption:	approx. 400 VA
Weight stand cabinet: incl. microwave electronics:	approx. 130 kg
Weight add-on for pneumatic package:	approx. 17 kg

Accessories optional

- **Pneumatic package** for 3 zone-padder or 1 zone-padder
- **Measuring data evaluation** at external PC (data transfer by USB stick or Ethernet LAN)

Available machines, measuring and control systems for different applications

- **StraightLiner** for high-tech automatic straightening
- **StructureDetector** for distortion analysis, pick/course density and width measurement
- **Add'nDry** for coating, drying and heat-treatment processes with multiple sensors
- **Dens'nDry** for drying and fixation processes and pick/course density
- **DrumDryControl** for cylinder dryers
- **SizeControl** for controlled size pick-up
- **PadderControl** for continuous dyeing and cold pad batch dyeing
- **Sensors** for fabric temperature, exhaust humidity, oxygen, application and residual moisture

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