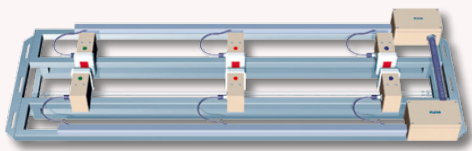


# Continuous Dyeing Process

PAD-DRY • PAD-STEAM  
COLD-PAD-BATCH

**PadderControl**  
CIMATIC



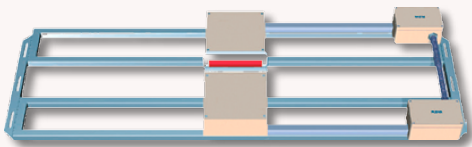
Application moisture AF310



CIMATIC PadderControl



Application moisture



Intermediate moisture RF 120



Intermediate moisture



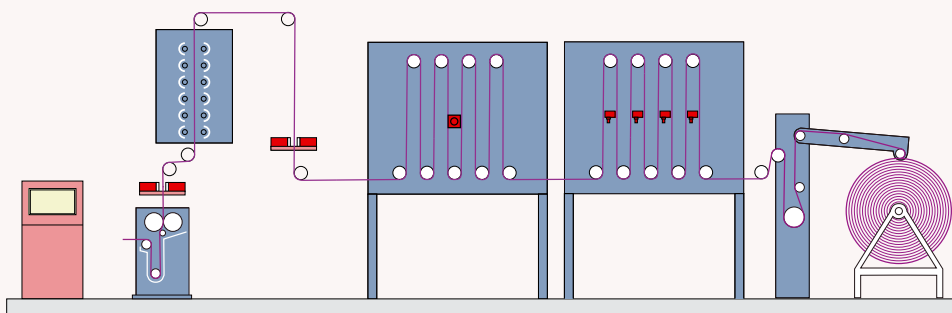
Air humidity FSX



Fabric temperature sensors TDS



Thermo fixation



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

### 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, right 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 uses touch screens panel with trend graphic display, data gathering, recipe memory and interfaces to connect to a network by Ethernet.



PadderControl CIMATIC touch panel

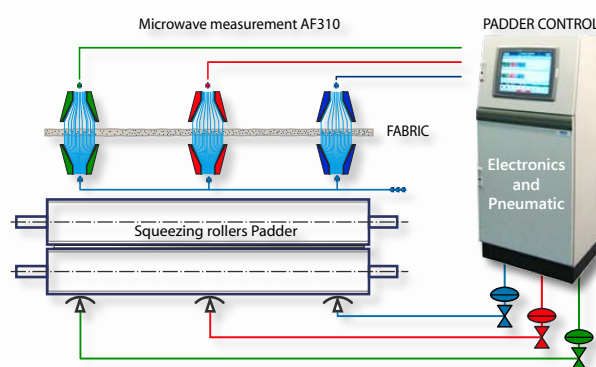
### BENEFIT FOR CUSTOMER

- Uniform dye application 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

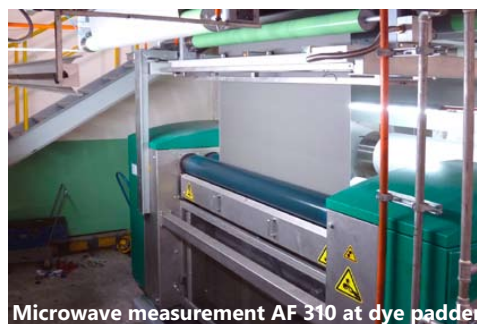
### Measurement and control principle of a dye padder

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

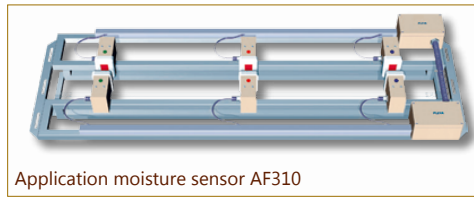


CIMATIC PadderControl at dye padder

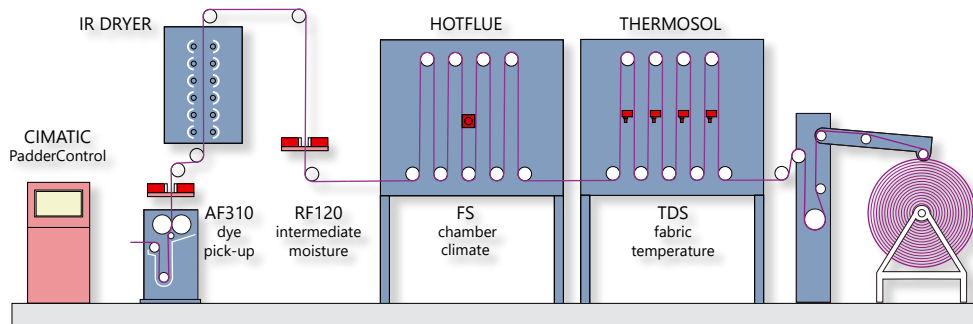
**Application moisture at the dye padder  
Type AF310**

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

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 avoid shade variation and tailing.



Application moisture sensor AF310

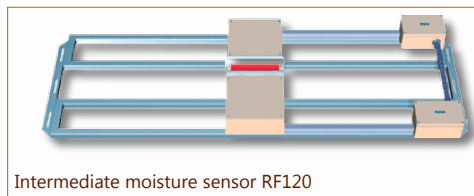


Continuous dyeing range with hotflue and thermosol part

**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.

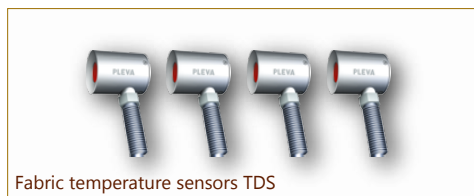


Humidity sensor FS

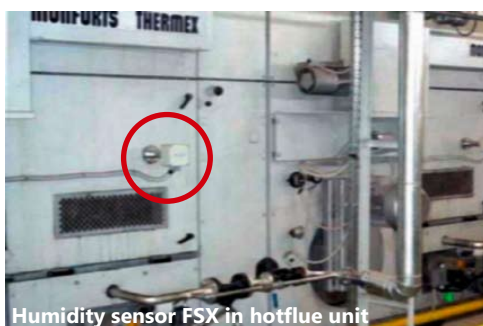
**Thermo fixation in the thermosol unit  
Type TDS**

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

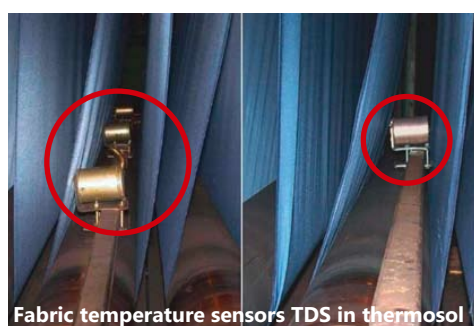
The sensors TDS will monitor the fabric- and the air temperature where the sensors are mounted to calculate the dwell time or curing time.



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 maintenance

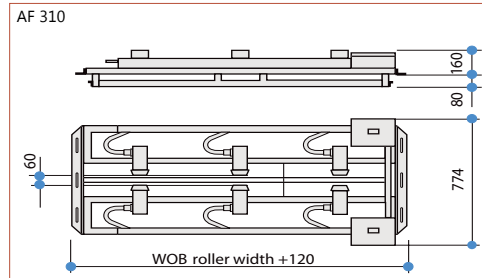
BENEFIT FOR CUSTOMER

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

# PadderControl CIMATIC

## Microwave measurement

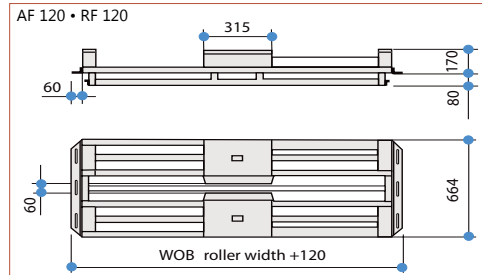
### Type AF 310



#### Sensor AF 310

Ambient temperature sensor max. 50 °C  
 Temperature of webs: max. 50 °C  
 Measuring range AF 310: 0 .. 25 g H<sub>2</sub>O/m<sup>2</sup> up to 0 .. 5000 g H<sub>2</sub>O/m<sup>2</sup> (using calibration curve)  
 Measurement accuracy: +/- 1 % of measuring range  
 Adjustment time: +/- 0.8 g H<sub>2</sub>O/m<sup>2</sup> absolute inertia free  
 Frame dimension for: fabric width up to 5500 mm  
 Weight approx.: 80 kg (frame width 2000 mm)

### Type AF 120 • RF 120

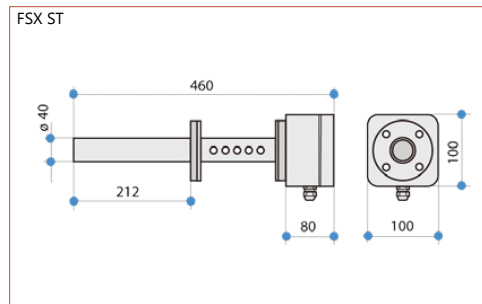


#### Sensor AF 120 • RF 120

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<sub>2</sub>O/m<sup>2</sup>  
 RF 120: 0 .. 200 g H<sub>2</sub>O/m<sup>2</sup> (using calibration curve)  
 Measurement accuracy: +/- 1 % of measuring range  
 Adjustment time: +/- 0.3 g H<sub>2</sub>O/m<sup>2</sup> absolute inertia free  
 Frame dimension for: fabric width up to 5500 mm  
 Weight approx.: 70 kg (frame width 2000 mm)

## Air humidity sensor

### Type FSX

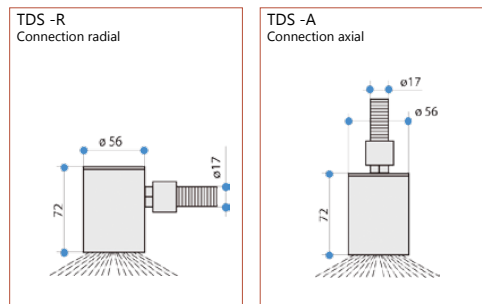


#### Sensor FSX

Process air temperature: Type FSX ST: max. 250 °C  
 Type FSX HT: max. 600 °C > 700 °C  
 Temperature of sensor: approx. 20 min  
 Heating-up time for sensor: standard 0 .. 1000 g/kg  
 Measuring range sensor: 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

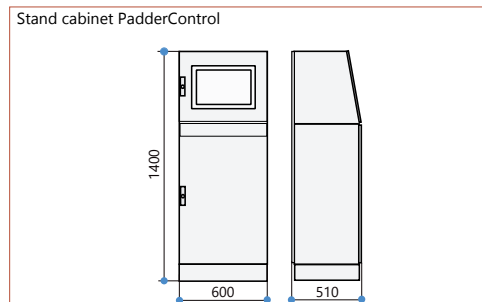


#### Sensor TDS

Ambient temperature: Type TDS ST-A • TDS ST-R  
 Measuring range 0..250°C: Type TDS HT-A • TDS HT-R  
 Measuring range 0..400°C: +/- 1 %  
 Accuracy measuring range: 20..120 mm (optimal 60mm)  
 Distance to material: 140 mm at 20 mm distance  
 Measuring area: 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

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### 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 monitoring and control systems for different applications

- **ECO-OPTIDRY®** with energy consumption meter for drying process
- **Add'nDry** for coating process
- **PadderControl** for continuous dyeing process
- **SizeControl** for controlled size pick-up
- **DensityControl** for pick/course density
- **StraightLiner** for automatic straightening and distortion analysis
- **StructureDetector** for distortion analysis