Continuous Dyeing Process
PAD-DRY • PAD-STEAM
COLD-PAD-BATCH

Application moisture AF310

Intermediate moisture RF 120

CIMATIC PadderControl

Air humidity FSX

Application moisture

Intermediate moisture

Fabric temperature sensors TDS

Thermo fixation
PadderControl
CIMATIC

PadderControl

Measurement and control at dye padder

Type PadderControl CIMATIC

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

---

**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 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.
**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.

**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.

**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.

**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.

**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
### Technical Data

**Sensor AF 310**
- Ambient temperature sensor: max. 50 °C
- Temperature of webs: max. 50 °C
- Measuring range AF 310: 0 .. 25 g H₂O/m² up to 0 .. 5000 g H₂O/m² (using calibration curve)
- Measurement accuracy: not better than +/- 0.8 g H₂O/m² absolute
- Adjustment time: inertia free
- Frame dimension for: fabric width up to 5500 mm
- Weight approx.: 80 kg (frame width 2000 mm)

**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 H₂O/m²
  - RF 120: 0 .. 200 g H₂O/m² (using calibration curve)
- Measurement accuracy: not better than +/- 1 % of measuring range
- Adjustment time: inertia free
- Frame dimension for: fabric width up to 5500 mm
- Weight approx.: 70 kg (frame width 2000 mm)

**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
  - 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

**Sensor TDS**
- Ambient temperature: max. 50 °C
- Measuring range 0 .. 0.25°C: Type TDS ST-A • TDS HT-A
  - Type TDS ST-R • TDS HT-R
- Measuring range 0 .. 0.40°C:
- 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

**Stand cabinet PadderControl**
- 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

Specifications are subject to alteration without notice.