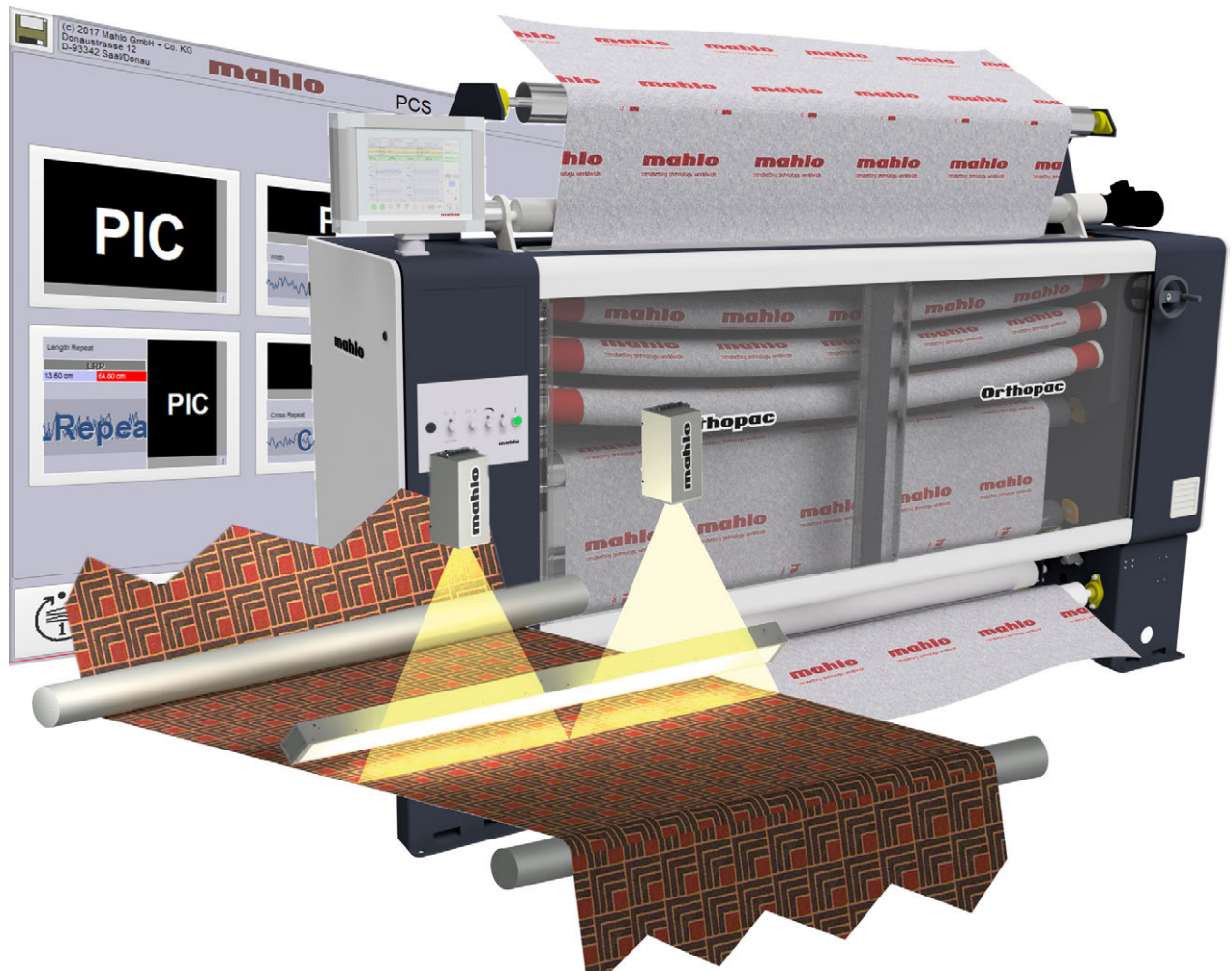


# Patcontrol PCS-20/RMM

Straightening concept for automatic pattern recognition, distortion correction



Patcontrol PCS-20/RMM



Quality made in Germany



TEXTILE



NONWOVEN



COATING & CONVERTING



PAPER



EXTRUSION

## PATCONTROL PCS–20/RMM

### Area of application



#### Customer benefits

- ✓ *Uninterrupted monitoring and logging of actual product quality*
- ✓ *Savings in raw materials and energy at the manufacturing stage*
- ✓ *Increased productivity*
- ✓ *Optimized quality assurance*
- ✓ *Optimized process repeatability*
- ✓ *Short payback times*

Modern textiles present challenges in production and finishing to manufacturers which did not exist like this in the past. Materials with major variations of density or elasticity are used especially in the area of processing technical textiles. Producing straight or aligned patterns becomes therefore more and more difficult.

To still deliver the desired quality to customers, textile manufacturers must observe smallest tolerances of parameters such as pattern repeat or pattern distortion. After all, nobody would accept distorted patterns in carpets, textile printing, woven goods and knitwear, because the distorted designs affect the looks and usefulness of the product resulting in dissatisfied customers and complaints.

### Principle of operation

Depending on the application area of the Patcontrol PCS, Mahlo configures the system individually. The system uses one or two cameras – depending on the width of the product to be processed – to automatically detect the position of the pattern and continuously determine the pattern repeat, measures the product width, and – together with a weft straightener – aligns the product distortion based on the print pattern.

### Analysis software versions



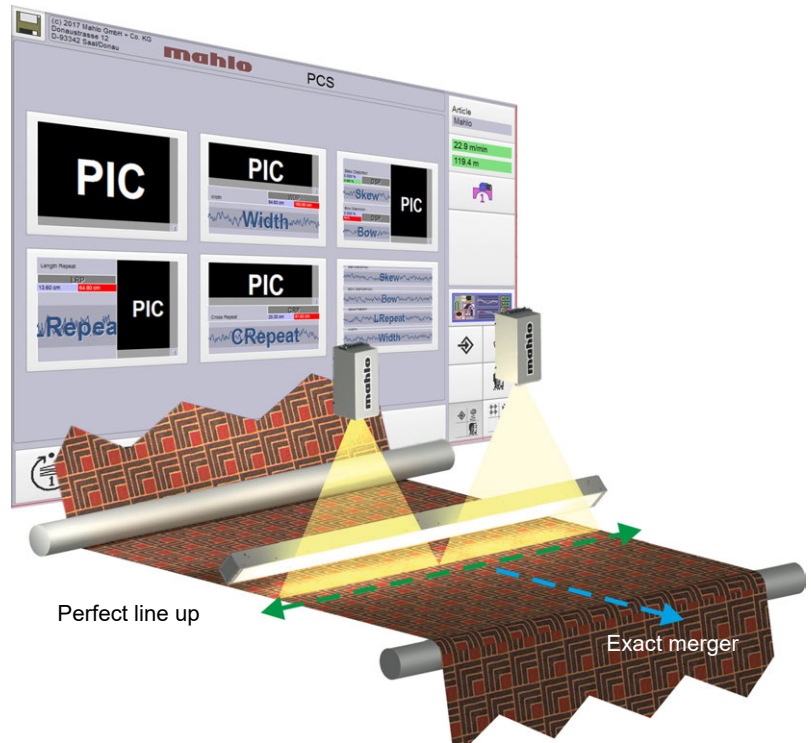
#### Product highlights

- ✓ *Modular assembly*
- ✓ *Measures repeat and straightens patterns simultaneously*
- ✓ *The very latest high-tech line cameras*
- ✓ *Easy to retrofit*
- ✓ *User-friendly*
- ✓ *Comprehensive operating software with corresponding visualization*

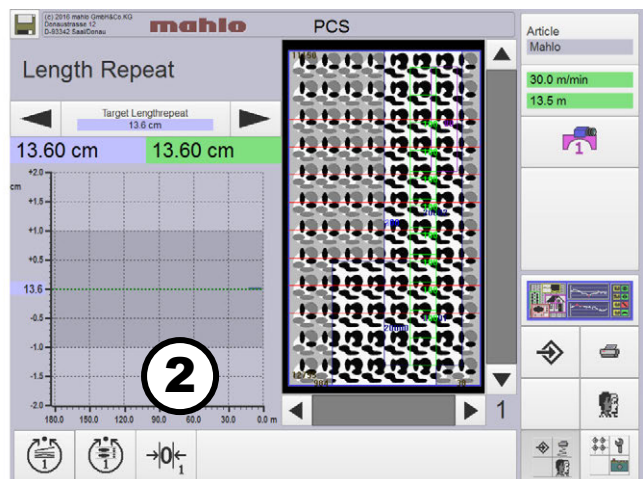
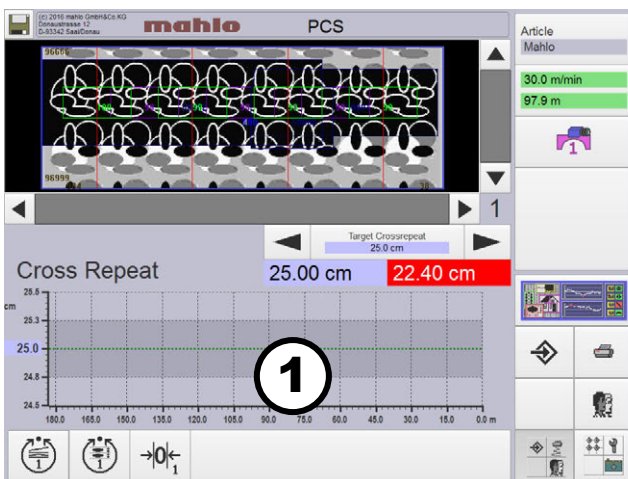
- **PDS (Pattern Distortion System)** pattern distortion detection and control
- **PRS (Pattern Repeat System)** pattern repeat detection and control

Both systems work with different pattern typing. To generate the best possible analysable image of the pattern or the product structure on the screen, a special lighting unit, working with transmitted or reflected light, supports the line scan camera. The system works with different analysis algorithms, depending whether the patterns shall be calculated perpendicular to the running direction or in length or cross repeat. They also depend on the pattern itself (e.g. Pattern, lines, etc.). The Patcontrol PCS adapts to sudden changes of the product width. Intervention of the operating personnel is largely not required.

**Patcontrol PCS - Distortion detection**



*A variable number of line cameras are responsible for the image capturing.*



- ① PRS-software for pattern repeat measurement and control
- ② PDS-software for pattern distortion measurement and control

## ORTHOPAC RMM

### Distortion correction



#### Product highlights

- ✓ Highest alignment accuracy
- ✓ Fast-reacting servo-controller
- ✓ Progressive straightening speed
- ✓ Very compact construction
- ✓ Low goods content
- ✓ Numerous options



#### Customer benefits

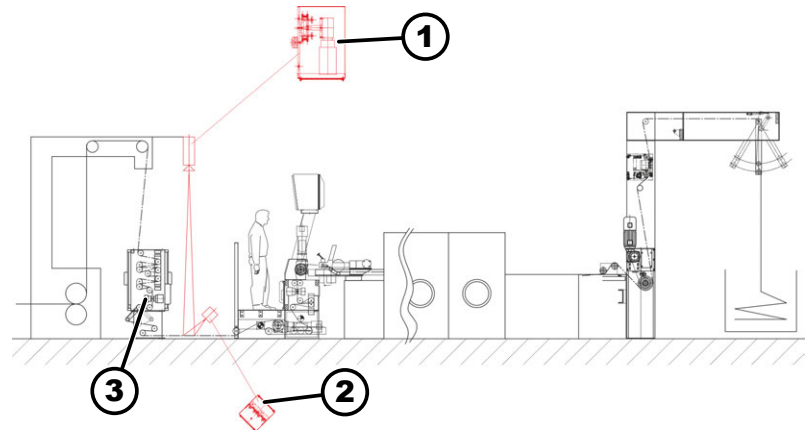
- ✓ Maintaining tight distortion tolerances
- ✓ Documentation of residual distortions
- ✓ Avoiding complaints
- ✓ Improved customer relationship
- ✓ High repeatability
- ✓ Short amortisation times
- ✓ High reliability / Service life

The Orthopac RMM straightening system in combination with the Patcontrol PCS offers a high-precision solution for the correction of pattern distortions. This powerful duo eliminates distortions with accuracy and without delay.

The compact and robust design of the Orthopac RMM ensures easy operation with minimal maintenance. The machine is equipped with three skew rollers and two bow rollers as standard, whose steplessly controlled actuators ensure a precise and fast response.

The versatility of the Orthopac RMM makes it possible to process a wide variety of loads at speeds from 3 to 100 m/min. Numerous options, in particular the sensitive web tension control for lace and knitted fabrics, allow optimum adaptation to different product types and applications. This flexibility makes the system ideal solution for a wide range of textile processing applications, where maximum precision and efficiency are required.

#### Typical installation for lace



Pattern straightening at the stenter frame inlet

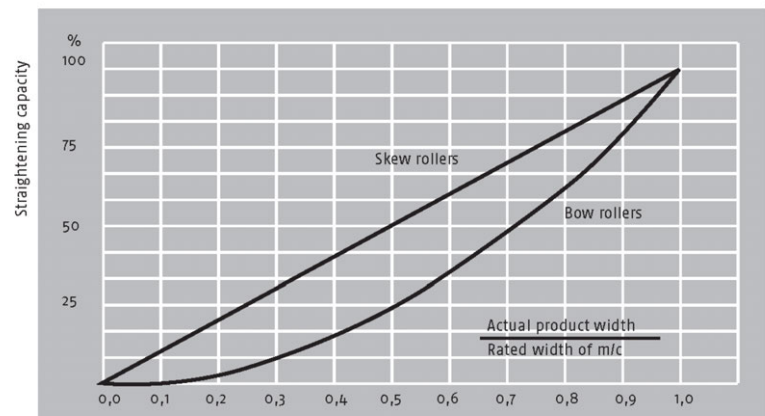
- 1 Patcontrol PCS camera
- 2 Patcontrol PCS lighting
- 3 Orthopac RMM

Another area of application is fabrics that cannot be detected with conventional scanning systems, such as lace and raschel curtains. The Patcontrol PCS continuously and precisely measures the pattern repeat in machine direction and controls the straightening unit or the pre-feed roller in order to achieve the most accurate and consistent pattern repeat possible.

**Orthopac RMM - Distortion correction**



*Web straightener Orthopac RMM, with 2 bow and 3 skew rollers. Web tension control and spreader roller optionally available.*



Straightening capacity of skew and bow rollers

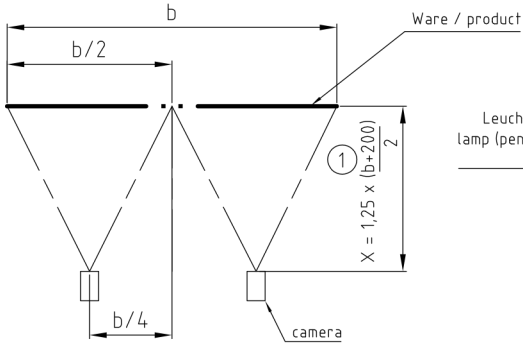
*Straightening capacity of the skew and bow rollers of Orthopac RMM*

## TECHNICAL DATA

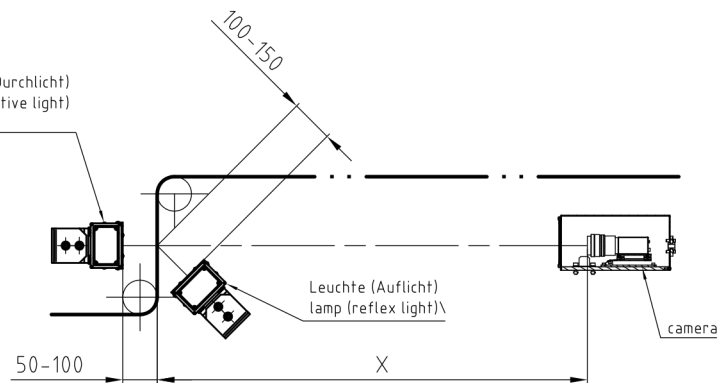
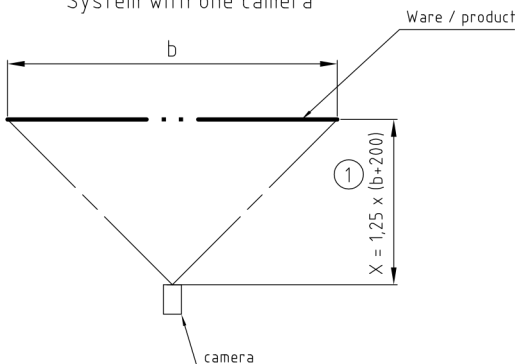
Device	Patcontrol PCS
Measuring principle	Optical measuring method with camera technology
Nominal product width, maximum	5.00 m
Product speed, maximum	120 m/min depending on resolution and lighting
Camera cable Length, maximum	20 m
Rotary pulse encoder	5000 Pulses/Revolution
Dimensions	depending on the product width
Power supply	1 x 230/115 VAC, 50/60 Hz
Temperature range	5 - 50 °C

### Dimensions

System mit zwei Kameras  
System with two cameras



System mit einer Kamera  
System with one camera

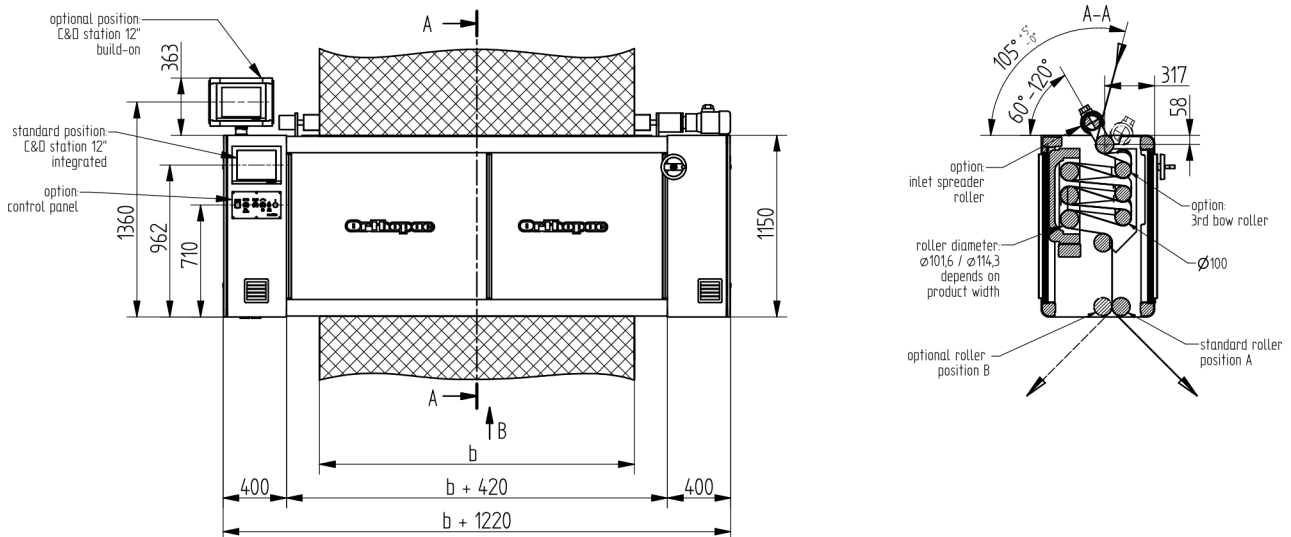


$b = \text{Warenbreite / product width}$

Patcontrol PCS installation (91-014244-01)

Device	Orthopac RMM
Straightener	Skew rollers: 3 Bow rollers: 2 (optional 3)
Roller adjustment, Drive mechanism	Hydraulic: Servomotor and reversing pump Electrical: Asynchronous motor with frequency inverter
Rollers, Rate of roller adjustment	Bow and skew rollers adjustable 0 – 100 %: ≤ 2,5 s
Theoretically max. possible straightening effect (at full utilization of the nominal product width) (at w = 1800 mm)	Skew ±750 mm Bow ± 220 mm (2 bow rollers; with 3rd bow roller + 50 %)
Nominal product width, maximum	3400 mm
Product speed, maximum	250 m/min (no tension control), 150 m/min (with tension control)
Fabric capacity (basic machine with scanner assembly)	3 Skew- / 2 bow rollers: ~ 3280 mm
Weight (at w= 1800 mm)	~ 950 kg
Power supply	3 x 400 VAC ±10 %, 50/60 Hz; transformer available for other voltages
Temperature range	5 – 45 °C without Cooling 5 – 50 °C with Cooling

**Dimensions**



Orthopac RMM (91-021303)

## Monitoring and control systems, automation

# MAHLO GUARANTEES QUALITY. WORLDWIDE, IN YOUR VICINITY.

Best-possible technical support and know-how transfer are written in capital letters at Mahlo. Thanks to an international network of agencies and service centres, customers have at their disposal competent support worldwide. We are there for you. Just get in touch with us!

- ✓ Service partners in over 100 countries
- ✓ Direct on-site service and fast delivery of spare parts
- ✓ Remote diagnostic system
- ✓ Service Hotline: +49-180-5062456
- ✓ WWW.MAHLO.COM



### **Mahlo GmbH + Co. KG - Germany**

Donastr. 12  
93342 Saal / Donau  
Telephone: +49-9441-601-0  
Fax: +49-9441-601-102  
Email: info@mahlo.com

### **Mahlo Italia S.R.L. - Italy**

Via Fiume 62  
21020 Daverio  
Telephone: +39-0332-94-95-58  
Fax: -  
Email: mahlo.italia@mahlo.com

### **Mahlo America Inc. - USA**

575 Simuel Road  
Spartanburg S.C. 29304  
Telephone: +1-864-576-6288  
Fax: -  
Email: mahlo.america@mahlo.com

### **Mahlo Ouest S.R.L. - Belgium**

Quantum Center  
Hütte 79 - Bte 10  
4700 Eupen  
Telephone: +32-87-59-69-00  
Fax: +32-87-59-69-09  
Email: mahlo.ouest@mahlo.com

### **Mahlo España S.L. - Spain**

Calle Luxemburgo nº 4  
08303 Mataro (Barcelona)  
Telephone: +34-938-640-549  
Email: mahlo.espana@mahlo.com