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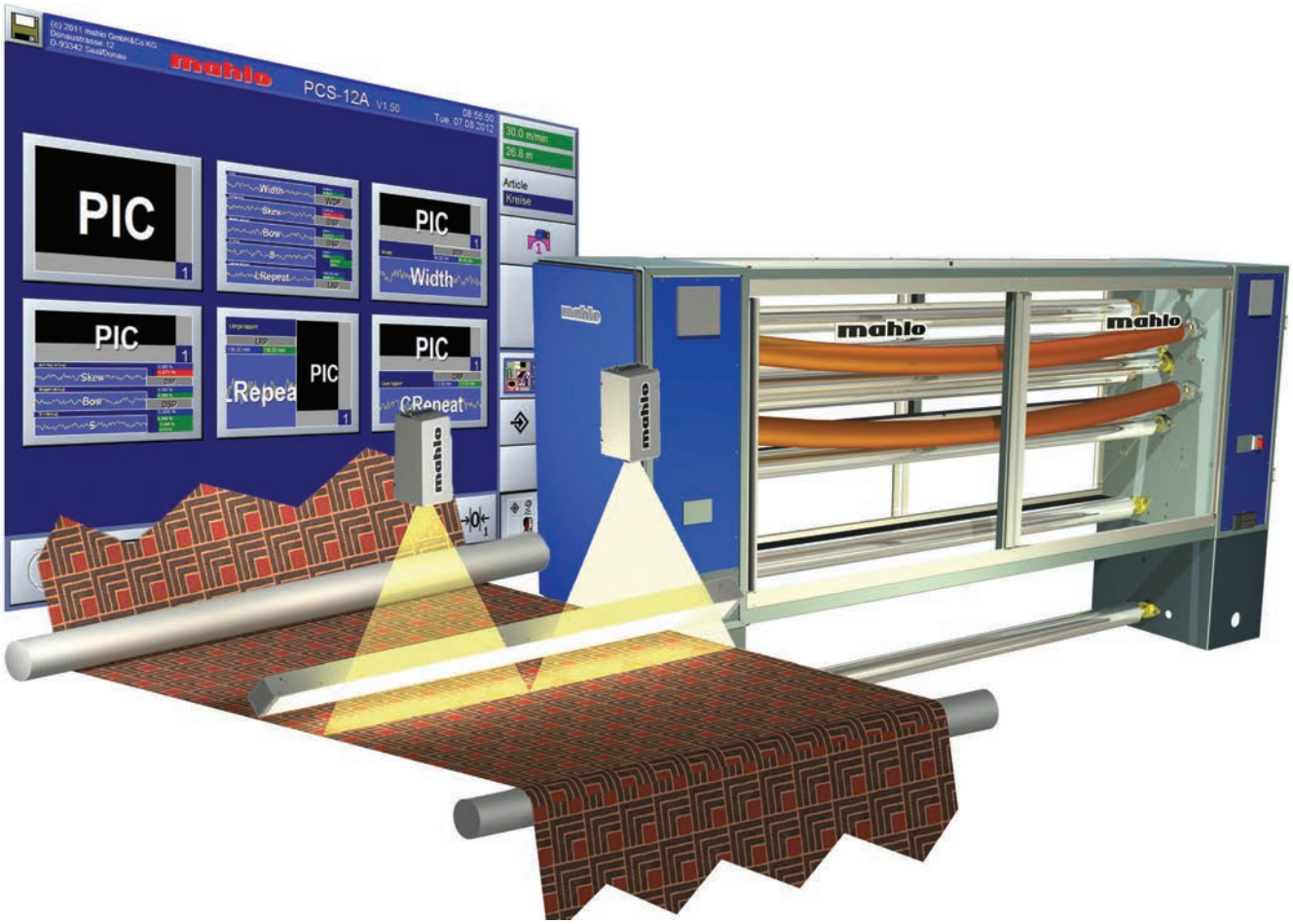
Straightening Concept

PATCONTROL PCS-12A/GRMM

The fusion of camera based pattern recognition with the fastest responding mechanical weft straightener for

- Automatic pattern detection,
- Distortion correction and
- Design-repeat control



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PATCONTROL PCS-12A/GRMM 84-010430 en

Subject to technical changes!

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PATTERN DETECTION, DISTORTION DETECTION,
DESIGN-REPEAT

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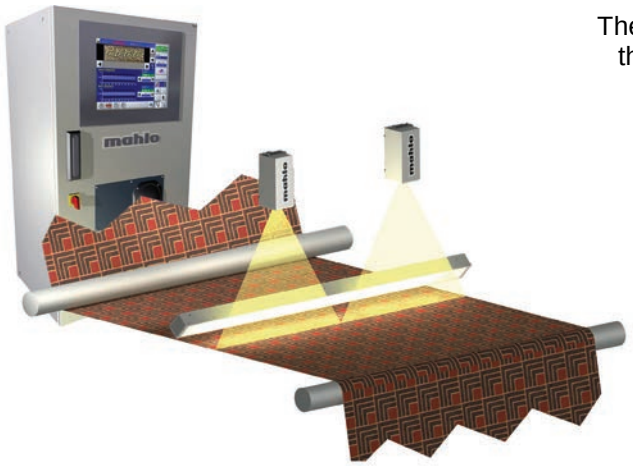
PATCONTROL PCS



Pattern & distortion detection, design-repeat

The manufacture and finishing of modern textiles poses problems that were rarely, if ever, encountered previously. It has become far more difficult to turn out straight or realigned patterns. Keeping variables such as design repeat or pattern distortions to within increasingly tighter tolerances is mandatory in the manufacturing, processing and finishing sectors. Distorted patterns especially on lace fabric, carpeting and printed fabric, must be straightened without fail. Bowed or skewed designs impair a product's visual appearance, reduce its usable value and lead to complaints.

Principle of operation

A PATCONTROL is configured in accordance with each customer's specific requirements.

It differs in accordance with the type of software analysis:

- ✓ One software package detects and controls bowed and skewed designs(PDS Pattern Distortion System)
- ✓ Another software package monitors and controls design repeat (PRS Pattern Repeat System)

The system registers the lie of the pattern by line cameras – the number dependent on repeat size and width of the product – monitors design repeat automatically and continuously, measures the width of the material, and realigns the pattern with the help of an associated straightening machine.

The system detects the repeat length and controls automatically the overfeed setting on the stenter. A clever algorithmic feed forward controller ensures outstanding results. Even with brief variations in repeat length, the overfeed setting is immediately adjusted to the necessary value as soon as the product arrives at the stenter in-feed. By automatically rechecking the result at the delivery end, the PATCONTOL helps to ensure a very stable repeat length on the product.

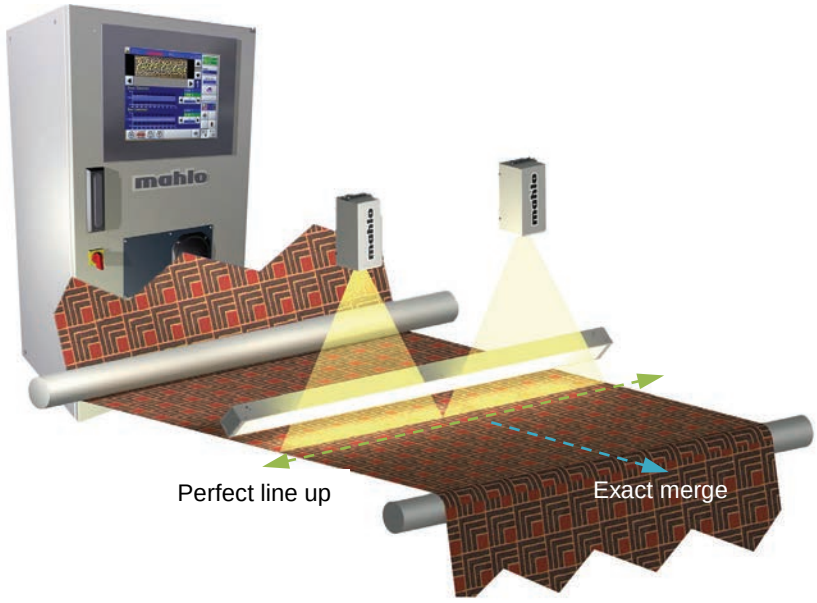
In order to project the best possible, computable image of the pattern or fabric structure onto the screen, the line cameras are supported by a special light fitting, the beam of which either penetrates or illuminates the surface of the product. Depending on whether the system is required to compute cross-sheet patterns or motion and carriageway repeat, different alogorithmic assessments are employed. These depend in turn on the design itself (e.g. pattern, lines, etc.)

Product highlights

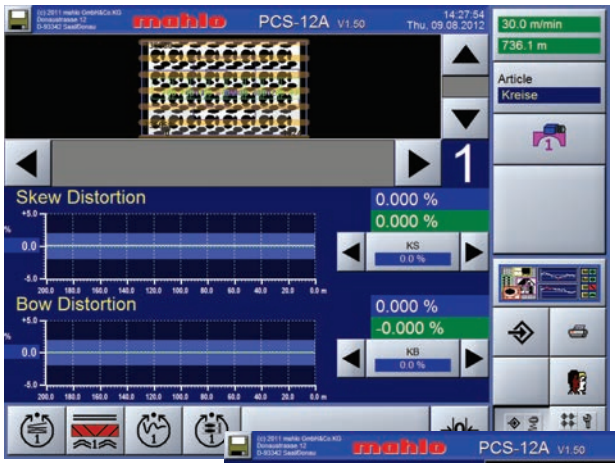
- ✓ Modular assembly
- ✓ Measures repeat and straightens patterns simultaneously
- ✓ The very latest high-tech line cameras
- ✓ Easy to retrofit
- ✓ User-friendly

Customer benefits

- ✓ Uninterrupted monitoring and logging of actual product quality
- ✓ Increased productivity
- ✓ Optimized quality assurance
- ✓ Optimized process repeatability
- ✓ Short payback times
- ✓ Effective also with asymmetric distortions



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



- PRS-software for pattern repeat measurement and control

- PDS-software for pattern distortion measurement and control

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ORTHOPAC GRMM

Product highlights

- ✓ Ultra-precise realignment of pattern
- ✓ Quick reacting servo-controller
- ✓ Progressive rate of straightening
- ✓ Exceedingly compact construction
- ✓ Low product content
- ✓ Wide variety of optional extras

Customer benefits

- ✓ Maintains tight distortionrelated tolerances
- ✓ Helps avoid complaints
- ✓ Improves customer relationships
- ✓ High standards of repeatability
- ✓ Short payback times
- ✓ Highly reliable / long service life

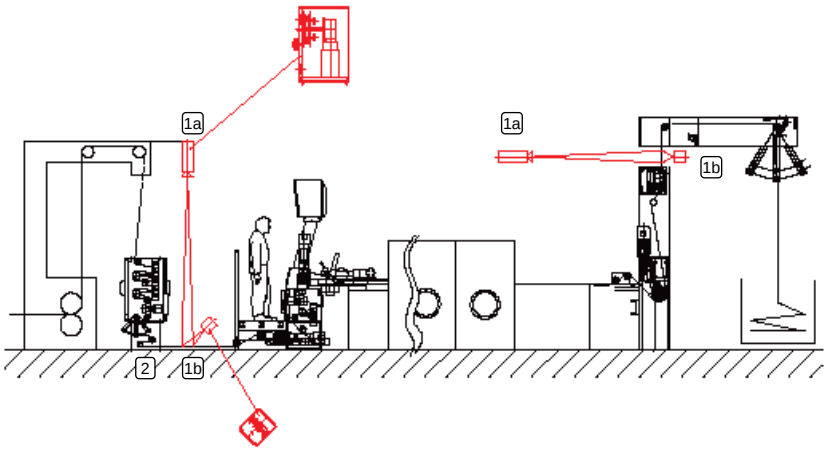
Distortion correction

For the needful correction of the measured pattern distortion, Mahlo can provide the user with an ORTHOPAC GRMM straightener (=reinforced version for higher line tensions), a universal and well-proven system. Distortions are eliminated with the utmost precision and instantaneously by the interplay between ORTHOPAC GRMM and PATCONTROL PCS. The system is easy to operate and robustly constructed.

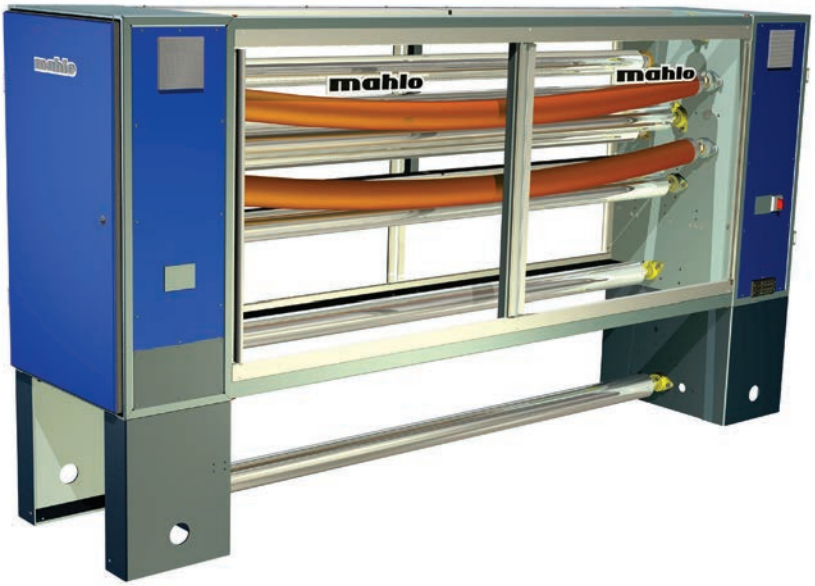
The exceedingly compact machine is furnished as standard with 2 skew and 2 bow rollers. A third skew and bow roller can be intergarted optionally. The unique, stepless controlled actuators for adjustment of the bow and skew rollers ensure the quickest possible and most precise response along with an absolute minimum of maintenance.

The compact, reinforced and solid construction of the mechanical straightener is especially suitable for high fabric tensions. Processing speeds range from 3 m/min to 100 m/min. A variety of options ensures that the system can be adapted optimally to suit the respective application and types of product likely to be encountered.

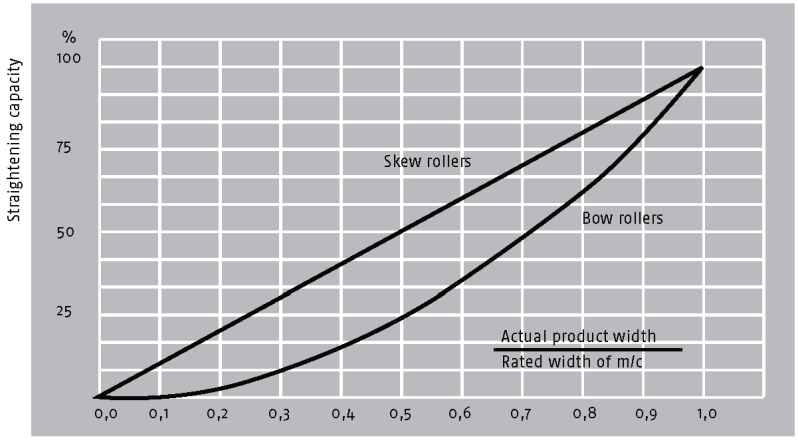
A typical installation:



1a Patcontrol PCS-12A Camera 1b Patcontrol PCS-12A Illumination
2 Orthopac GRMM



Weft straightener ORTOPAC GRMM, with two bow and three skew rollers, web tension control and spreader rollers available as optional extras

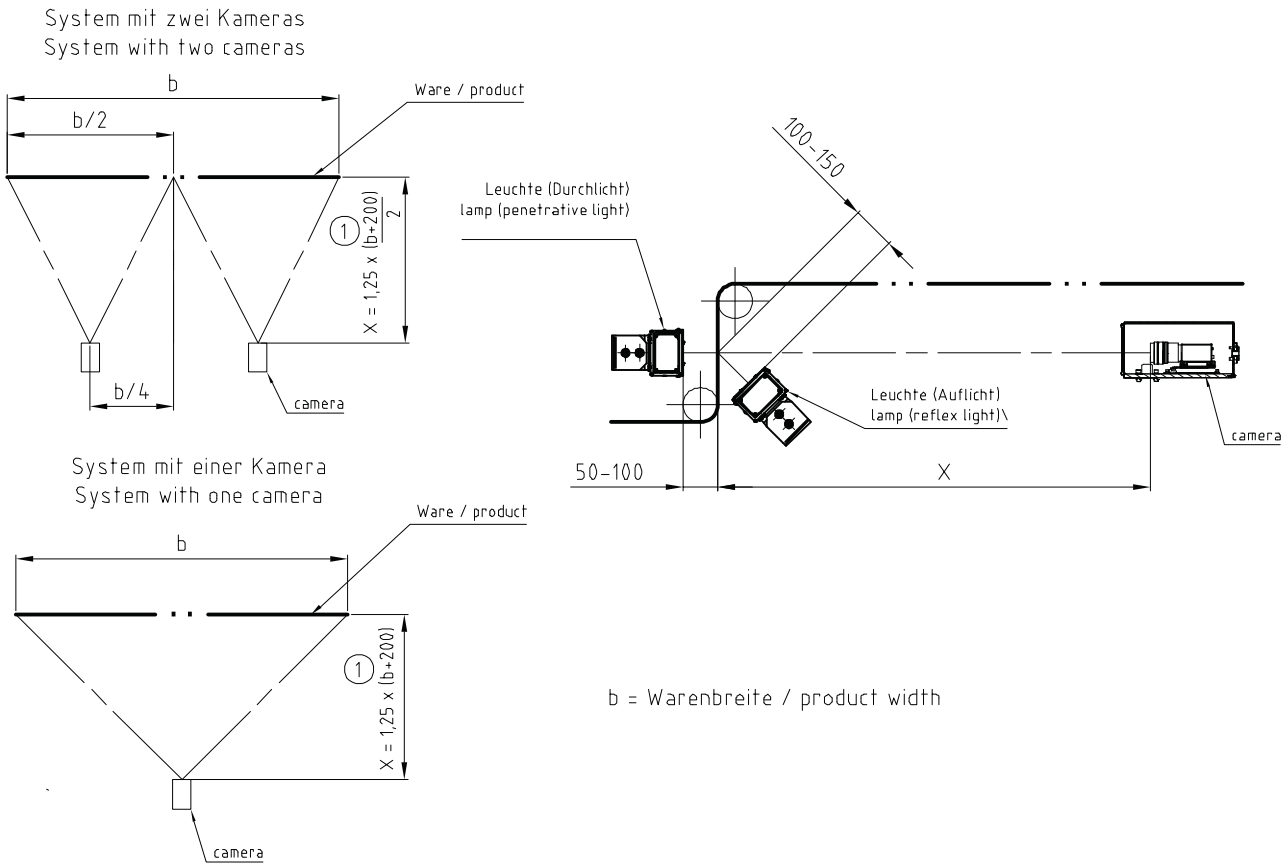


Straightening capicity of skew and bow rollers

Straightening capacity for skew and bow rollers.

Technical Data

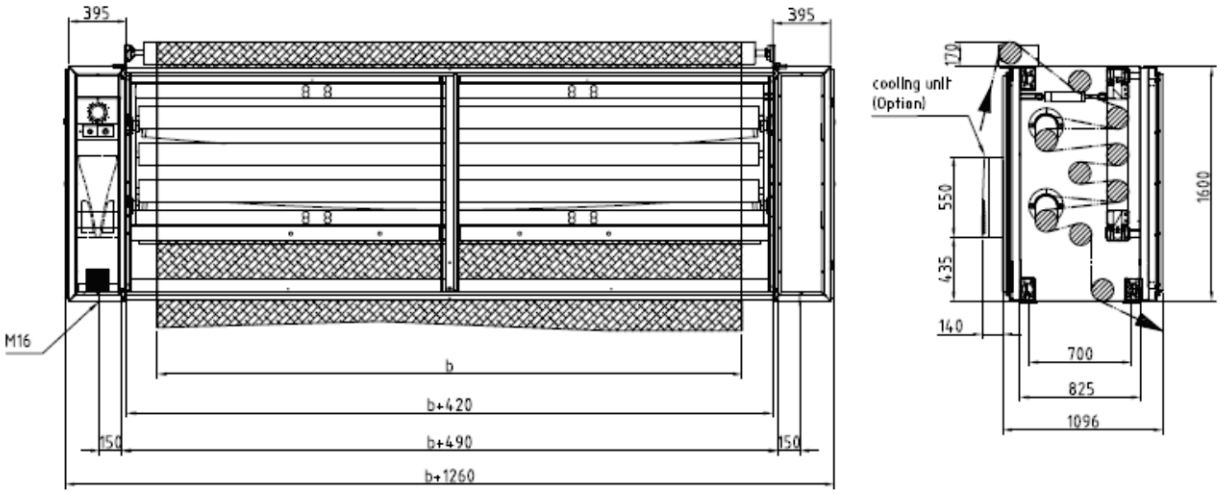
Unit	Patcontrol PCS
Measurement	Optical measurement method by cameras
Max. product width	Up to 5,00 m
Max. line-speed	120 m/min, subject to resolution and lighting
Max. length of camera cable	20 m
Motion sensor	5000 Imp/Rev Dimensions
Subject to product width Power supply	1 ~ 230/115 V AC, 50/60 Hz
Ambient temperature	Max. 50 °C



Patcontrol PCS
91-014244

Technical Data

Straightener	Orthopac GRMM
Mechanics	2-skew rollers (3rd optional), 2-bow rollers (3rd optional)
Drive mechanism	Hydraulic: controlled by a servo system; Electrical: controlled by frequency-regulated servo motors
Straightening capacity (at w = 1800mm)	Max. skew ± 540 mm; max. bow ± 300 mm (2-bow rollers), (with 3-bow or skew rollers +50% each)
Rate of roller adjustment	bow/skew adjustable, minimum of 4-5 seconds at maximum displacement
Max. fabric width	5500 mm
Max. fabric line-speed	150 m/min (no tension control), 150 m/min (with tension control)
Fabric capacity (basic machine with scanner assembly)	2-bow and 2-skew rollers: ~ 3500 mm 3-bow and 3-skew rollers: ~ 4900 mm
Dimensions	See diagrams
Weight (at w = 1800mm)	~ 3900 kg
Power supplies	3 ~ 380V/50Hz, 3 ~ 400V/50Hz, no neutral; transformer available for other voltages
Power consumption	Max. 6,4 kVA (by fully furnished combi-installations)
Ambient temperature	Max. 45°C (no air conditioner)



Orthopac GRMM with Patcontrol PCS
91-017570

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