



PATCONTROL PCS-12



Pattern Control System

Measurement

Control

Automation



Pattern Control System PCS-12

The system

A PCS-12 is configured in accordance with each customer's specific requirements. The system registers the lie of the pattern by either one or two cameras – the number dependent on the width of the product – monitors design repeat automatically and continuously, measures the width of the material, and realigns the pattern with the help of a straightening machine.

It differs in accordance with the type of software analysis:

- a) PDS (Pattern Distortion System) detects and controls bowed and skewed designs
- b) PRS (Pattern Repeat System) monitors and controls design repeat

using various standardized patterns.

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 carriage-way repeat, different algorithmic assessments are employed. These depend in turn on the design itself (eg. Pattern, lines, etc.).

A PCS-12 can adapt automatically to sudden variations in product width, and is thus largely independent of operator intervention.

The PCS-12 Pattern Control System is available in divers forms:

- Self-contained form for 1 monitoring point comprising: panel with IPC and 15" TFT-monitor and electronics light fitting impulse tachometer option of 1 or 2 camera modules (dependent on product width)
- Split form for more than one monitoring point comprising: main monitoring point: panel with IPC and electronics light fitting impulse tachometer option of 1 or 2 camera modules (dependent on product width) one or more extensions with panel, IPC, electronics, etc. and one or more display and control terminals with 15" TFT-monitors
- custom-built specials can also be supplied!

The key to detection and realignment of patterns

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 on carpeting and printed fabric, both woven and knitted, must be straightened without fail. Bowed or skewed designs impair a product's visual appearance, reduce its usable value and lead to complaints.

Pattern Control System PCS

Versatility

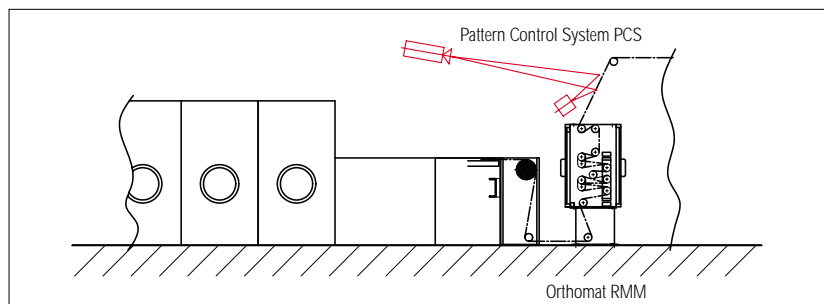
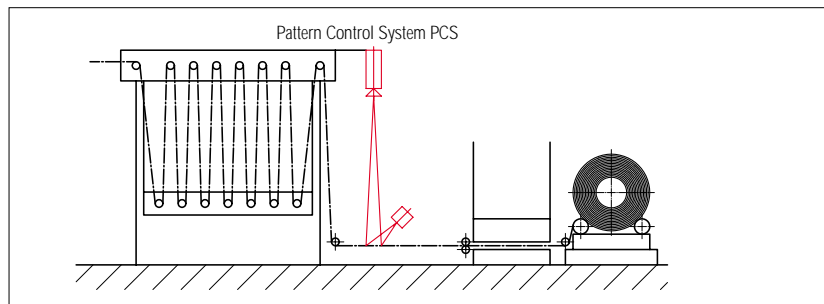
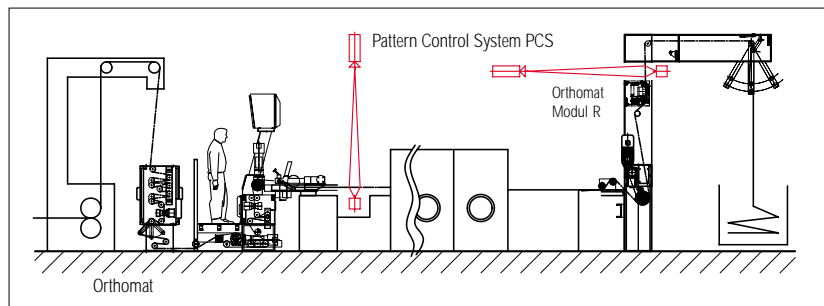
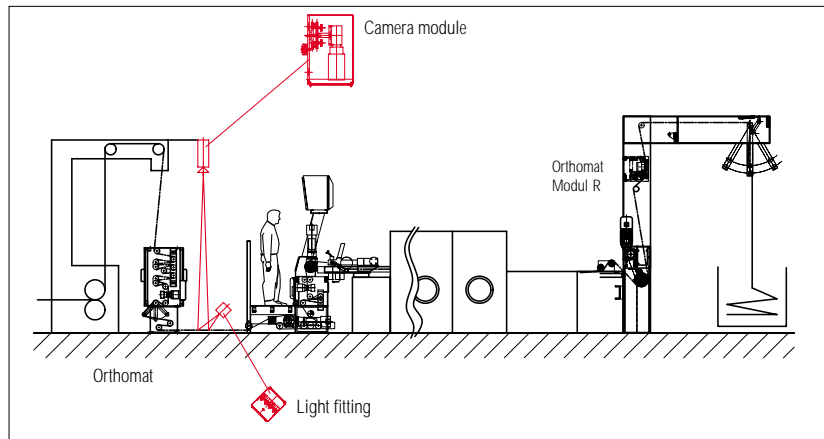
The system has confirmed its ability to automatically realign bow and skew distorted industrial fabric, bordered terry fabric, printed dress material and flocked products.

It can also be applied to products which simply cannot be detected and straightened by conventional systems, lace or raschel curtain fabrics for example. A PCS-12 measures continuously and accurately the motion-way pattern and controls an overfeed or similar device in order to ensure an as accurate and consistent as possible pattern repeat.

2-camera systems capable of detecting pattern-related bow and skew across the full width of the product and logging any residual distortion are likewise employed in a practical way. A PCS-12 can be either put to use on a perching machine to document possible residual bow and skew, or combined with an Orthomat straightener or weft-control system as an alternative to their respective scanning systems.

On finishing lines in the carpet industry, they differentiate between two distinct applications:

1. Distortion
 - a) feed-end straightening
 - b) delivery-end straightening
 - c) control of draw roller
 - d) data logging
2. Repeat:
 - a) control of draw roller
 - b) measurement of repeat and sorting for the carpet layer
 - c) data logging



The opportunity to document pattern lengths and distortion across the full width of the product provides the carpet manufacturer with valuable information on, for example, how accurate and consistent the design repeat really is on each individual roll of carpet. With the help of this information, the carpet layer can sort the rolls into a definite sequence before they are laid. Slight variations are then blended in during the laying process, and more pronounced ones sorted out for disposal elsewhere.

Applications:

- Straightening curtain and lace fabrics, monitoring pattern repeat and controlling an overfeed roller
- Straightening woven and tufted carpeting ahead of a coating process
- Straightening terry fabric (eg. hand towelling)
- Fine-tune straightening of printed cloth
- Measuring and sorting pattern repeat
- Continuous measurement of width
- Data-logging pattern repeat and distortions on carpeting
- Straightening residual bow and skew in carpeting at the stenter outlet
- Special analysis and measurement of industrial fabrics



Straightening hand towelling PDS RMM



Carpet inspection PRS



Carpet inspection PDS/PRS-combination



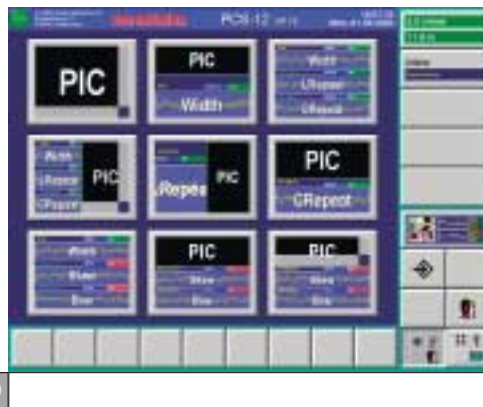
Perching machine

Operating the system

Once it is switched on, control buttons appear on the touchscreen monitor. The system can thus be controlled direct via the screen's user-interface.

Screen displays:

- ① Main display (optional measuring systems)
Options can be selected from numerous, predefined screen pages
- ② Indicates target pattern repeat (motion and carriage-way) and readout, along with their associated histograms and display of the camera-recorded image.



①

- ① Indicates target distortion (bow and skew) and readout, along with the associated histogram and display of the camera-recorded image



②

Technical data:

Power supply: 230V, 50/60 Hz

Number of monitoring points:
up to 4

Camera: 2048 pixel, mounted in a protective enclosure, lens with fixed focal distance or zoom

Light: incident/penetrative, light modules up to 5000mm in width (matched to in-circuit cameras)

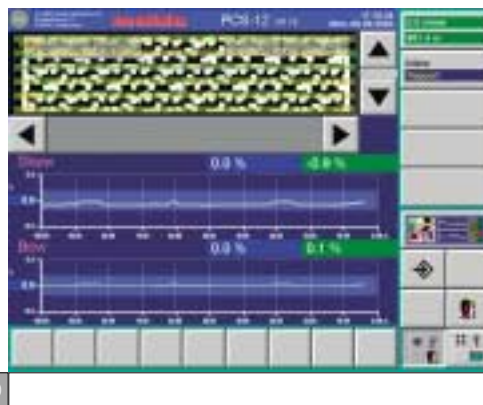
Line-speed: up to 120m/min

Length of camera cable: up to 20m

Motion sensor: 5000 imp/rev.

Optional extras:

Air conditioner, analog and digital control outputs, alarm outputs, etc.



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