

New Solutions from Mahlo

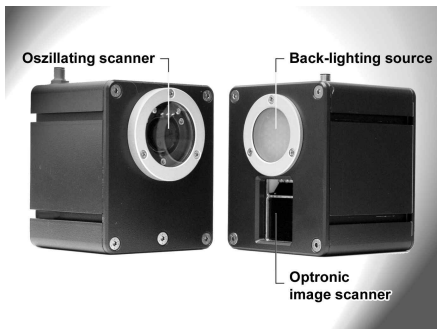
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Mahlo, a family-run company which is located in Bavaria, has carved out a solid position in the competitive global marketplace. Mahlo is one of the world's leading producers of measurement, control and automation systems for the textile industry and for the paper, foil and coating sector.



The company's extensive portfolio of products and services reflects constant movement and progress. The products are designed to set new standards in quality assurance and process optimization. The goal is to work together with the customer to identify the most competitive and cost-effective production solutions. The ultimate purpose of this strategy is to maximize ROI and value-add by reducing the usage of energy, raw material and human resources while optimizing quality, equipment utilization and work flow. Mahlo has now added several new options which help customers achieve these aggressive goals.

Distortion detection and control: Hybrid



scanning® in the ORTHOMAT® Shorter product life cycles, increasing product variety and an incessant rise in quality and delivery performance expectations are characteristic features of today's textile market. To remain competitive, producers have to produce high-quality products with short turnaround times. New ways have to be found to detect distortion under these demanding conditions and perform other functions such as pattern repeat and pick counting simultaneously. Mahlo's answer is hybrid scanning which combines proven, unparalleled oscillation technology using the 12 scanner head and an innovative optronic image scanning unit.

Ten years of experience in machine vision applications using pattern detection products coupled with rapid advances in camera technology has enabled Mahlo to use certain aspects of this technology for distortion detection. The strengths of both systems have been combined without changing the dimensions of the compact scan head (13 cm depth). The head can still be used where space is at a premium.

With this unconventional solution, no adjustments are needed to handle different goods, and the image remains in focus. The double-side scanner can inspect the face and back of the fabric in one pass, and fabrics which run through the production process with the surface which needs to be scanned facing the wrong way can still be checked.

Automation fabric detection is without doubt the real highlight. The straightener has to be re-adjusted for problematic fabrics. A "fingerprint" of the fabric only needs to be stored once. The machine then automatically detects the fabric and uses intelligent SOS (Self Optimizing System) technology to select the correct recipe. This completely eliminates setup and changeover times, reducing operator workload and avoiding possible sources of operator error. Up to 80 readings per second can be taken across the width of the fabric. Placement of 4 - 8 scan heads



on each side of the fabric creates a representative image of the overall distortion pattern. The Mahlo solution eliminates idle time which is a significant advantage compared to transversing scanning systems.

Evaluation of small and micro patterns, detection of partial distortion and intelligent determination of thread density are additional useful features of the Mahlo solution.

Hybrid technology can be retrofitted at minimal cost to any generation 12 Orthomat system. The first hybrid systems which have been shipped have performed well in field applications.

Online defect detection: WIS-12 inspection system.

There is one problem which will be familiar to many people in the industry. After the unprocessed goods have been printed or coated, ugly defects appear which were



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trendsetting technology. worldwide.

ORTHOMAT FMC-12
 Realigns distorted weft automatically

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previously undetectable. Whose fault is it? Were the unprocessed already damaged upon delivery or were mistakes made during processing? At the end of the day, the textile processor often has to simply bite the bullet, scrap the goods and try again.

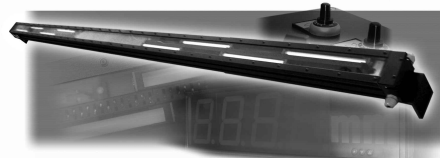
A lot of effort is often invested in up-front quality control (visual inspection), but the human eye cannot perform inspection at high speeds. The goods have to move very slowly, and small defects still remain undetected. In addition, the inspector cannot check the entire width at once. The human eye soon suffers from fatigue and the quality standard is not maintained.

The WIS-12, Mahlo's automatic defect inspection system, provides the answer. Leading-edge camera technology is used to check for defects on the moving web. Up to 100% of defects can be detected at high web speeds (up to 100 m/min). In contrast to the human high, scanning performance remains constant, and the resolution of the system enables it to detect defects (as small as 0.5 mm) which are invisible to the human eye.

The number of line cameras which are used depends on the web width and the required resolution. The cameras are placed above the web which is illuminated with reflected and transmitted light. A variety of product requirements can be accommodated by varying the lighting conditions and making optical modifications. When the web is scanned, MergeViewer analysis software detects the defects and records the events. When the run is complete, the error log identifies the location of every defect on the web with millimeter accuracy. The scan image can also be stored and viewed, and the defects can be accessed on the scan.

A test web is used to perform setup. The defects which are detected are classified and stored. The setup can then be used as a recipe for a defined class of goods (e.g. cotton, white, etc.).

By accurately logging defects prior to downstream processing, substandard goods can be identified before they are transferred



to the next process. This saves money and reduces the frustration level.

Online width detection: WILOT WMR
In the ready-made clothing industry, it is very important that the goods are delivered in exactly the right width. Today's patterns are optimized to minimize waste. If the goods are too narrow, they are unsuitable for the cutting operation. If they are too wide, too much material is wasted. This makes it important to check the width after the fixing process to check and record the width of the goods, because some goods are susceptible to shrinking after they leave the stretcher.

The new Wilot WMR is the ideal solution for these applications. It uses wear-free LED technology to perform single-sided, non-contact detection. Infrared LEDs operating in reflex mode detect the width of the moving web. Retro-reflective sensors are only needed on one side of the web. The web does not have to be threaded in, and there is no risk of contact between the goods and the sensor. This solution is also compatible with a wide range of mounting configurations.

The sensitivity of the sensors can be adjusted very accurately, and a minimum or maximum width can be defined, for example to trigger an alarm function. This solution enables in-process intervention and correction. The Wilot WMR has been carefully designed to make the sensor immune to spurious or ambient light. Two versions are available to handle a wide variety of applications: a stand-alone version with digital display and a module version for use with an ORTHOMAT and visualization on a TFT touch screen. Other versions are currently in the development phase.

Mobile geometric measurement: GRIDSCAN IMG

Goods that have important geometric features are produced in many processes, for example knitted or woven fabrics or perforated and patterned plate in the furniture and steel industry. The product range can be very diverse, and the geometric characteristics often have to be identical in order to meet specific market requirements. Very close tolerances have to be maintained, for example during the production of luggage netting to ensure stability and prevent small objects from falling through the nets if the holes are too big.



Online measurement systems would be too costly and cumbersome in these applications, and the risk of variation in product dimensions during production is very low. Sample checks are sufficient, so a compact, mobile device is the obvious solution.

The GRIDSCAN IMG was developed specifically for this purpose. The small, handy pistol-shaped device is used for non-contact geometric measurement, providing a simple and user-friendly way of conducting QC inspection. With minimal effort and no fixed installation, you can use the "Image Gun" anywhere, anytime.

A pre-calibrated camera captures a live image at the point of use. The user can press a button to freeze and save the image. The geometry of the goods is evaluated automatically, and the results are displayed on the screen of the integrated Ultra Mobile PC. A 30GB memory is provided to archive the image and results, and there is also a USB 2.0 port to transfer the data to other computers.

There is absolutely no contact during the detection process. No force is applied to the goods or target object. The objects retain their shape, and the geometry of the objects is not changed. This ensures that the results are accurate and reliable.

The advantages are obvious: a wide range of potential applications and measurements, simple documentation of process quality, enhanced quality assurance and optimization of the production process, and you get all of that from a small, handy instrument. Progress made in Bavaria

An in-depth understanding of the real problems and close cooperation with our customers are the driving forces behind a whole range of new products. More products are in the pipeline, and we can expect see something new at the upcoming ITMA in Munich. Mahlo will be there to welcome visitors on 350 m² of exhibition space.