



# USTER® Fabric Inspection

The quality analyses systems

## What is Think Quality™?

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#### It is 'managing your textile mill with quality in mind'

Today's textile markets are highly-competitive, throughout the entire value chain from fiber to fabric. Customers expect unique products, at the right quality and free from unacceptable defects, every time. Mills need to manufacture economically, with best-possible use of resources – especially raw materials and labor. These are major challenges, requiring comprehensive mill management strategies.

### Take control of your quality – Think Quality™

USTER's unique Think Quality™ approach is the way to 'manage your textile mill with quality in mind'. It integrates world-class USTER® products and services to ensure you always produce optimum quality, enhancing your reputation – as well as achieving predictable profits.

Think Quality™ means:

- Working to clear quality specifications from customers
- Controlling raw material sourcing, costs and yields
- Applying the best measurement and information systems
- Continuous production monitoring, for rapid response
- Understanding improvement options, through automated application know-how
- Benchmarking with USTER® STATISTICS
- Improve yield and assure quality of the final product



### Producing the right quality every time – the challenge for fabric producers

USTER® Fabric Inspection delivers major benefits for fabric producers. The three automated solutions support quality assurance and optimization of fabric yield in the final product. Automated inspection technology means fabric producers depend less on human judgment and produce consistent, reliable quality.

USTER® Q-BAR 2 provides early-stage detection of defects on-loom. USTER® FABRIQ EXPERT collects quality maps centrally for each roll. USTER® EVS FABRIQ VISION automates the inspection and grading process for greige and finished fabrics. And USTER® EVS FABRIQ SHADE ensures color uniformity of fabrics.



## USTER and EVS: Combined strengths for automation in the textile industry

### Expanded portfolio, added strength

USTER is the world's leading supplier of quality solutions for the textile industry from fiber to fabric. With EVS, USTER strengthens its portfolio in process monitoring and quality management for weaving, knitting, finishing, and nonwovens.

EVS has pioneered automated fabric inspection and vision-based process monitoring for more than 25 years, with 1 000 installations in wide-ranging textile segments worldwide. True to its slogan 'Your Quality – Our Vision', EVS customers inspect over 40 million meters of fabric per day.

With the high-tech solutions of both EVS and USTER, combined with the extensive service network of USTER, fabric producers get an unmatched value for their business.

### Fit for the future with automation

Automation makes producers less dependent on varying levels of operative ability and experience, or on different times of day and shift. The combined technology of USTER and EVS offers customers more potential for further automation and reconfiguration of processes, from fiber to fabric. This leads to increased efficiency and sustainable performance.

In an industry which often finds it difficult to attract talented, younger staff, the introduction of high-technology equipment and automated systems helps recruitment. A modern working environment is seen as more interesting and motivating to potential new employees, who will already be familiar with high-tech equipment and IT applications.

USTER® Fabric Inspection provides the added benefit of helping customers to prepare for the future, by improving the quality and dynamism of their workforce.

## USTER® Fabric Inspection: Business growth and quality assurance

At every stage of textile production, it is essential to prevent defects as early as possible, as well as controlling the finished product. First-quality production to customer specifications is the goal – especially important in demanding applications such as technical textiles and nonwovens. In apparel and home textiles, it is vital to avoid seconds and minimize wasted fabric. Using the right instruments, producers can also extend their flexibility by reacting to changing markets.

With three instruments for fabric inspection, USTER meets the needs of a number of different market segments:

- Automotive: air bags, tire cord, safety belts, headliners, dashboards
- Medical and nonwoven: diapers, medical gowns, surgical textiles
- Home textiles: bed linen, upholstery, carpets, sun screens, insect screens
- Apparel: clothing, sportswear, underwear, workwear, linings
- Technical textiles: printed circuits, coated fabrics, bulletproof fabrics, conveyor belts, digital printing films and foil, geo- and agro-textiles
- Composites: avionics, wind blades, reinforcement, laminates



#### Business continuity

Guaranteed quality compliance; protection for businesses, confidence in delivering the right quality



#### Quality assurance

Systematic approach ensures accurate and reliable results for compliant quality in production processes, finished fabric and shade accuracy



#### Reputation

Automated fabric inspection leads to enhanced company image



#### Business expansion

Access to new markets demanding higher quality, for increased business sustainability



#### Future-oriented

Automation supports solving recruitment problems and avoids human mistakes



#### USTER® Service

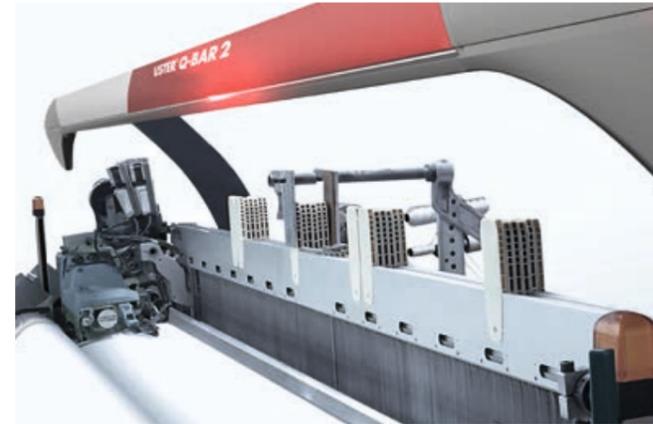
Worldwide network of experienced service technicians

## USTER® Q-BAR 2

### The fabric quality monitoring system

The best way to avoid off-quality is simply not to make it. USTER® Q-BAR 2 detects faults during manufacturing, preventing long-running defects over the full fabric width. Working close to the start of the process, it reduces material losses and the need for manual inspection after production. This enables delivery of constant and reliable quality.

- Fast, early-stage detection to prevent material loss
- Attractive and ergonomic design
- User-friendly visualization and classifying



**Fast, early-stage detection to prevent material loss**  
Its position directly behind the reed allows the USTER® Q-BAR 2 to respond quickly and avoid long-running or repeating defects. The alarm and stop signal enables the operator to correct problems immediately. This early detection reduces second quality and material loss.

The system design allows for simple installation on existing weaving machines, as well as warp knitting machines.



**Inspiring and ergonomic design**  
The slim and light housing enables the operator to work on the weaving machine without hindrance. The front can be opened, for easy access to the hardware for maintenance. Integrated LEDs in the USTER® Q-BAR 2 indicate system status. The operator is guided to the exact position of a defect by a red light on the USTER® Q-BAR 2. Since USTER® Q-BAR 2 does not contain moving parts, operating costs, e.g. for spare parts, are reduced.



**User friendly visualization and classifying**  
The system displays the fault image and position in front of the operator in real time via the user interface. Defects are detected, categorized, saved and displayed on an intuitive touchscreen. A quality defect map is created for each roll and can be reviewed in an album. USTER® Q-BAR 2 offers different grading possibilities and allows rolls to be categorized according to number, size and position of defects, as well as customer criteria.

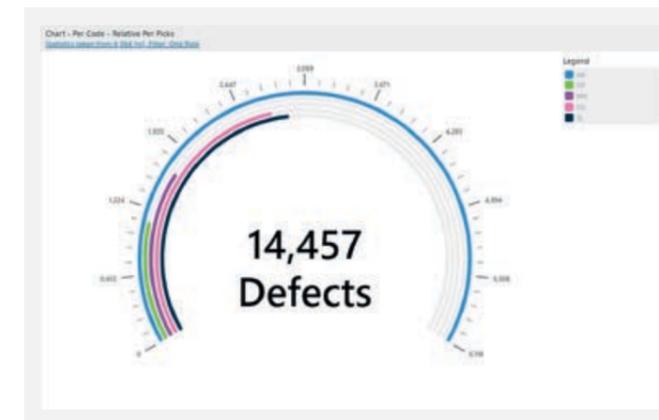


# USTER® FABRIQ EXPERT

## Easy-to-use monitoring and controlling system

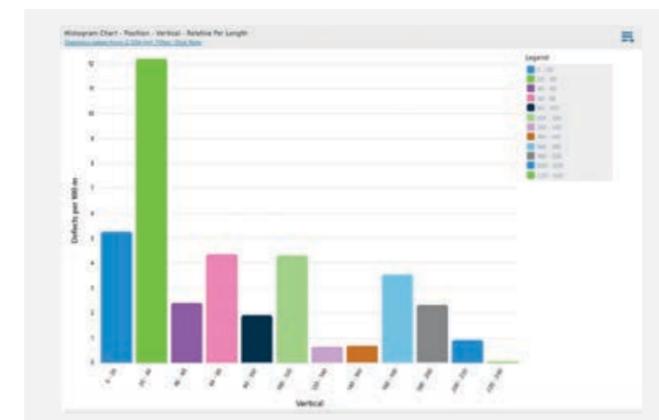
For textile mills, comprehensive statistics on inspected fabrics and online monitoring of the systems bring major advantages. USTER® FABRIQ EXPERT collects quality maps centrally for each roll. Fully-customizable reports are displayed at the on-screen dashboard. The system guides managers and operators to evaluate defects from different lots and optimize fabric yield.

- Quality statistics, including trends for all produced rolls
- Detailed quality analysis by position of defect
- Interpretation of current quality status, with context information



**Quality statistics, including trends for all produced rolls**  
USTER® FABRIQ EXPERT collects data on all defects to provide detailed statistics, comparisons and trends over time for each category. Customized filters for each available widget can highlight options such as time frame, roll, machines and more.

The various benefits include the ability to prevent defects by localizing them and also to compare and optimize different yarns, machines, styles etc.



**Detailed quality analysis by position of defect**  
Fully-customizable analysis with USTER® FABRIQ EXPERT allows users to select vertical or horizontal zones of an inspected roll. In a selected section, e.g. selvedge, defect types can be filtered to initiate actions and control the defect if necessary.

The whole width of the fabric can easily be split into different zones for deeper analysis of defects.



**Interpretation of current quality status, with context information**  
USTER® FABRIQ EXPERT provides an overview of all connected USTER® Q-BAR 2 systems in the mill. The main focus is to show quality information – for example the number of defects over a given time – within the relevant context, such as running status or production speed. Technical alarms are highlighted to trigger early reactions, so that problems can be solved as soon as they occur.

Users can also fine-tune the setup of USTER® Q-BAR 2.

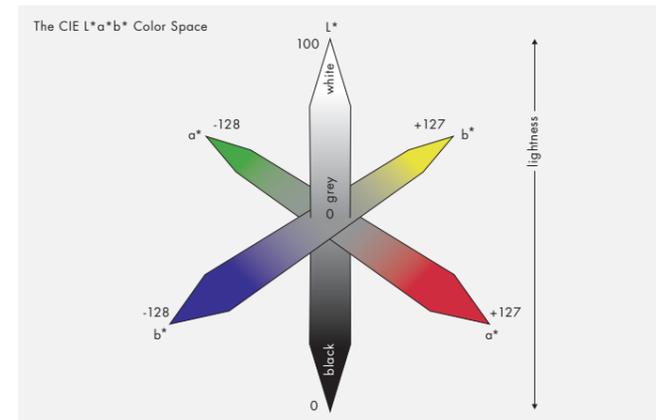


# USTER® EVS FABRIQ SHADE

## The fabric shade optimization system

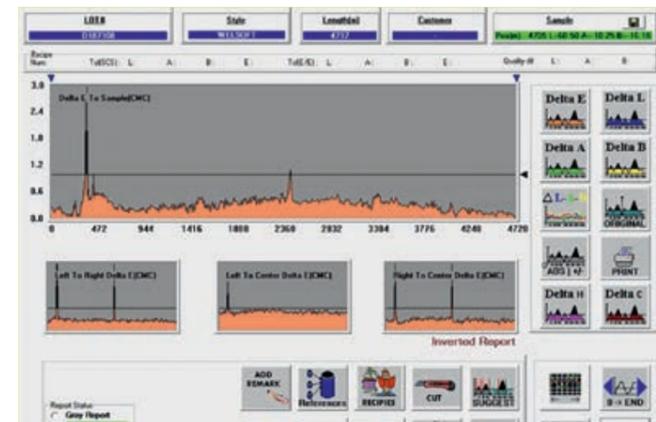
With dyed fabrics, the main challenge is color consistency from beginning to end and from side to side of a roll as well as between rolls of the same lot. USTER® EVS FABRIQ SHADE monitors shade variation in almost any process where color is critical. It supports fabric producers to deliver a constant shade in the end product, preventing claims and keeping customers satisfied.

- High-tech detection of shade variation
- Yield optimized for customer requirements
- Combined solution for maximum efficiency



**High-tech detection of shade variation**  
 USTER® EVS FABRIQ SHADE combines the power of a traversing spectrophotometer with sophisticated information processing. Monitoring is done directly on the system, without the need to cut the fabric. This reduces cost and effort for sampling.

USTER® EVS FABRIQ SHADE provides standard CIE L\*a\*b shade measurement or CMC  $\Delta E$  calculations with a spectrophotometer accuracy of 0.1  $\Delta E$ . It is capable of comparing ten different light sources (A, B, C, D55, D65, D75, TL84, F2, F2CWF, F12U30).



**Yield optimized for customer requirements**  
 The system continuously qualifies shade variation and includes an automatic planning and sorting feature. USTER® EVS FABRIQ SHADE offers several sorting options, which can be displayed on the monitor. To ensure that lots have optimal color uniformity, the system offers grouping options according to shade, based on the 5-5-5 color matching method. This allows fabric producers to optimize fabric yield and meet the requirements of major retailers.

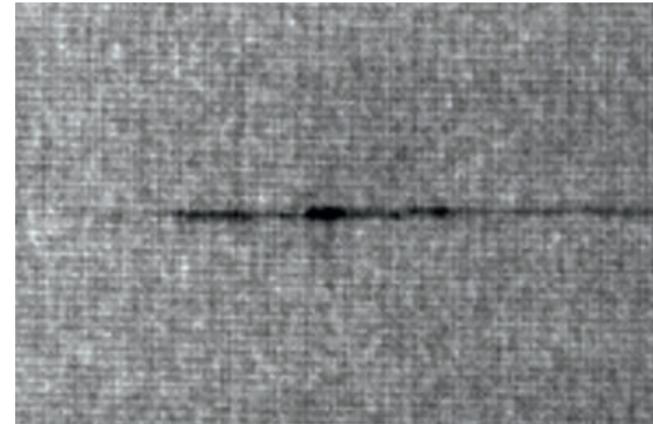


**Combined solution for maximum efficiency**  
 The combination of USTER® EVS FABRIQ VISION and USTER® EVS FABRIQ SHADE provides for two types of fault detection in a single process step. This greatly increases the efficiency of fabric quality detection and offers the ultimate solution for final finished fabric inspection, guaranteeing optimum customer satisfaction.

## Automated cutting options for increasing process efficiency

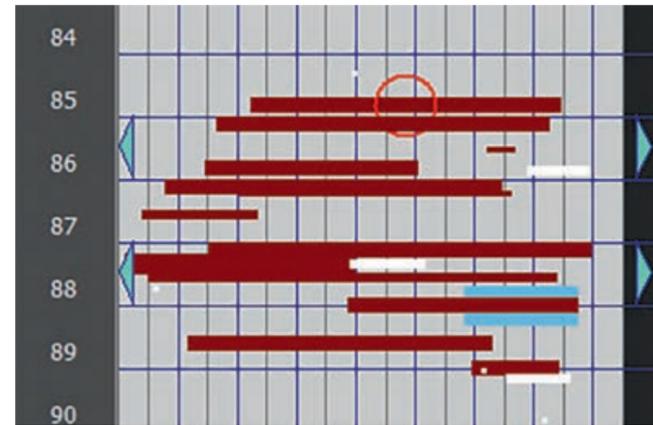
USTER® EVS FABRIQ VISION and USTER® EVS FABRIQ SHADE provide a number of options for improving process efficiency while also optimizing fabric yield.

- Infrared marker for accurate and invisible defect localization
- Cutting-table control with Optimized Cut Control (OCC)
- Laser pointer as operator support



### Infrared marker for accurate and invisible defect localization

To locate the exact position of defects and cutting points with high accuracy, USTER uses an infrared marker to put invisible marks on the fabric selvage. This is used later in the synchronization process, when the infrared sensor detects the invisible marks.



### Cutting table control with Optimized Cut Control (OCC)

During the inspection process, infrared ink is applied to the fabric as synchronization points. After the album review, the defect map is synchronized with OCC, which then stops the cutting table automatically at the precise point of the planned cut of bad fabric. This increases the accuracy and efficiency of the fabric cutting process.



### Laser pointer as operator support

The laser pointer indicates the exact position of defects during the cutting table process. This supports the operator to see defects immediately and allows for more efficient mending and marking during the final inspection.

### The standard from fiber to fabric

USTER is the world's leading supplier of total quality solutions from fiber to fabric. USTER® standards and precise measurement provide unparalleled advantages for producing best quality at minimum cost.

### Think Quality™

Our commitment to state-of-the-art technology ensures the comfort and feel of the finished product – satisfying the demands of a sophisticated market. We help our customers to benefit from our applied knowledge and experience – to think quality, think USTER.

### Broad range of products

USTER occupies a unique position in the textile industry. With our broad range of products, we have a wide reach across the textile chain that is unmatched by any other supplier in the market.

### Optimal service

Know-how transfer and instant help – we are where our customers are. A total of 215 certified service engineers worldwide grants fast and reliable technical support. Benefit from local know-how transfer in your specific markets and enjoy our service à la carte.

### USTER® STATISTICS – the textile industry standards

We set the standards for quality control in the global textile industry. With USTER® STATISTICS, we provide the benchmarks that are the basis for the trading of textile products at assured levels of quality across global markets.

### USTERIZED® – brand your products with quality

USTERIZED® stands for 'defined quality assured' within the textile chain. We invite selected customers to join the USTERIZED® Member Program. More information at [www.usterized.com](http://www.usterized.com).

### USTER worldwide

With four technology centers, four regional service centers and 50 representative offices around the world, USTER is always sure of delivering only the best to its customers. USTER – committed to excellence, committed to quality. And that will never change.



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