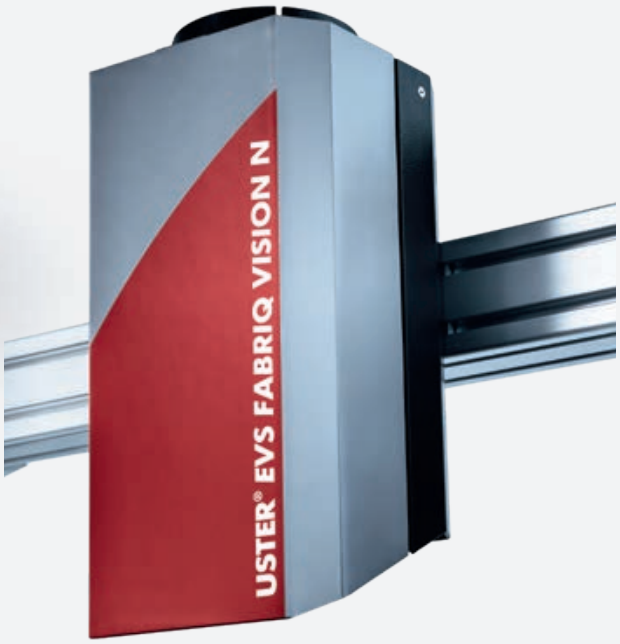


USTER® Nonwovens

Automated solutions for quality monitoring

USTER®
Think quality

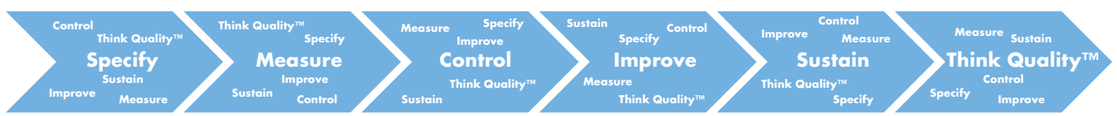
What is Think Quality™?

What is Think Quality™?

It is 'managing your plant with quality in mind'
Today's nonwovens market is highly-competitive, throughout the entire value chain from fiber to the final product. Customers expect unique products, at the right quality and free from unacceptable defects, every time. Producers need to manufacture economically, with best-possible use of resources – especially raw materials and labor. These are major challenges, requiring comprehensive management strategies.

Take control of your quality – Think Quality™
USTER's unique Think Quality™ approach is the way to 'manage your plant 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 usage
- 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



1. Specify 2. Measure 3. Control 4. Improve 5. Sustain

Producing the right quality every time – the challenge for nonwovens manufacturers
Thanks to its complete product portfolio, USTER® can offer a range of solutions to all nonwovens producers:
- The USTER® *JOSSI VISION SHIELD N* brings contamination control technology to the nonwovens industry, to ensure contamination-free fibers
- USTER® *EVS FABRIQ VISION N* automates the inspection and grading process for the product, ensuring total control over your desired quality level

USTER® Nonwovens: Expanded portfolio, added strength

The nonwovens industry today faces constantly increasing quality requirements. Trends such as sustainability (for example the ‘flushability’ regulations) and the greater focus on product quality by end-users are driving demands for more comprehensive control over both faults and contamination.

This, however, runs contrary to the need to be more cost-competitive, especially by minimizing raw material costs (the main expenditure component in nonwovens production). This may be achieved by finding alternative supplies from lower-cost countries and by reducing material waste during the production process.

The main issues causing quality defects and material waste can be summed up in two key words: contamination and faults.

Contamination control

The most common contaminants found in nonwoven products include wood, plastic strings, colored fibers from cross contamination, black spots, fused fibers and more. Today it is no longer acceptable to find any of these materials in end-products, since this would damage user perceptions of quality, and could prevent products from meeting standards such as ‘flushability’ requirements. In some cases, hard particles remaining in end-products could even result in class actions and lawsuits by consumers.

Fault detection

Also paramount is the need to prevent defects arising from the production process to reach end-products. The usual defects found in nonwovens are jet marks (from water-jets), unopened fibers, black spots, holes and other issues, any of which could result in raw material losses, second quality production, or, in the worst case, customer claims.

Thanks to its product portfolio, USTER can provide the appropriate solution for each type of problem:

USTER® *JOSSI VISION SHIELD N* ensures the best possible initial inspection and removal of contamination, at the fiber preparation stage. This improves the quality of the raw material and reduces waste, by eliminating contamination during fiber preparation, before the contamination is shredded into smaller pieces by further processing.

USTER® *EVS FABRIQ VISION N*, on the other hand, is located at the end of the production sequence, allowing automated detection and marking of all the main defects arising from the process – and of any remaining contamination.

The combination of USTER® *JOSSI VISION SHIELD N* and USTER® *EVS FABRIQ VISION N* means that USTER can offer a complete quality monitoring solution for the nonwovens industry, combining effectiveness and efficiency in removal of contamination and faults. This also improves operator safety, since manual marking is no longer required.

This combined solution makes it possible today for nonwovens producers to protect quality, avoid material waste and take full advantage of the potential for process optimization.

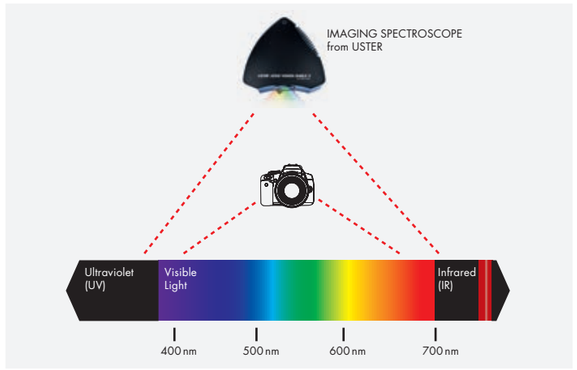
Contamination control: the biggest problem needs the most advanced technology solution

USTER® *JOSSI VISION SHIELD N* contamination sorters provide an innovative way to detect and eliminate contamination at the fiber preparation stage, before it becomes shredded into smaller particles. USTER® *JOSSI VISION SHIELD N* affords the best detection efficiency, at high production volumes.

- Ideal location for assured detection and removal of contamination
- Top spectroscope technology
- Detection of fine contamination

Ideal location for best detection

Correct positioning of the fiber cleaning system in fiber preparation is crucial. Fiber bundle size is the key here. Contaminants can hide inside bigger fiber bundles, and this can impact significantly on detection, wasting good material with each ejection. Located immediately after the fine opener, USTER® *JOSSI VISION SHIELD N* brings unrivaled detection power and removal efficiency, for top fiber cleaning performance with minimum raw material waste.



Top spectroscope technology

USTER's high-end IMAGING SPECTROSCOPES for USTER® *JOSSI VISION SHIELD N* are backed by 20 years' experience. Conventional camera-based systems cannot match their performance. Operating across a much greater wavelength, USTER's spectroscopes can find contamination even within the 'invisible' range of IR and UV light. Fragments of contamination in light pastel colors and white are also no problem.

Detection of fine contamination

Some of the common defects in nonwovens fine plastic strings. This type of contamination is very difficult to eliminate with today's processes.

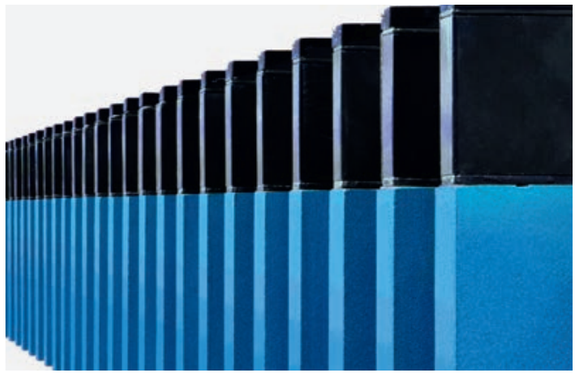
Thanks to the IMAGING SPECTROSCOPES, USTER® *JOSSI VISION SHIELD N* can detect these types of contaminants, regardless of their fineness. The system is also able to detect contamination as fine as a human hair.

Left: Contaminant (hair) within fiber
Right: Contaminant (hair)

Managing waste – to save costs and maximize value

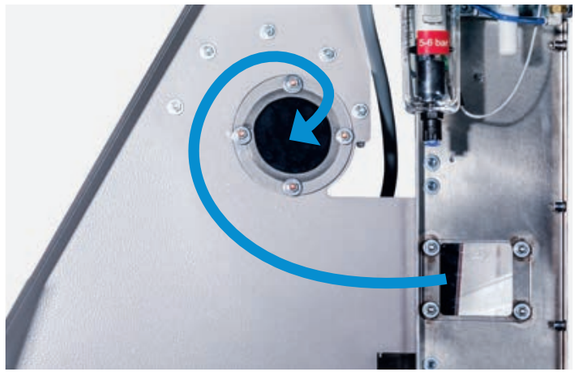
The process of detecting and removing foreign matter contamination from the raw material will inevitably generate some waste at the same time. Producers need to ensure their quality, while also minimizing waste of good fiber. USTER® *JOSSI VISION SHIELD N* uses a range of tools to reduce fiber waste to a minimum and maximize raw material usage.

- Continuous material speed measurement
- 'Cyclone' feature ensures ejected waste stays out
- Quick Teach feature for automatic recognition of raw materials' true color



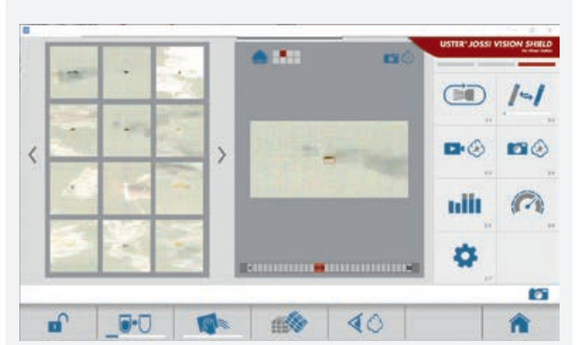
Continuous material speed measurement

USTER® *JOSSI VISION SHIELD N* continuously measures the velocity of the fiber bundles. Precision valves then match the timing and duration of each ejection, so that only the required amount of contaminant is removed. This minimizes the amount of good material wasted with each ejection.



'Cyclone' feature keeps ejected waste out

The unique 'cyclone' feature uses a crossflow circulation, preventing waste from getting back into the production flow. The USTER® *JOSSI VISION SHIELD N* ejection module guarantees efficient and economical operation.



Quick Teach system for color variations

Through its Quick Teach feature, USTER® *JOSSI VISION SHIELD N* automatically 'learns' the correct color of each new raw material lot within seconds. This prevents any annoying false ejections when changing material lots. Additionally, it is possible to view pictures of every ejected contaminant on the touchscreen, to verify that only the required material is removed.

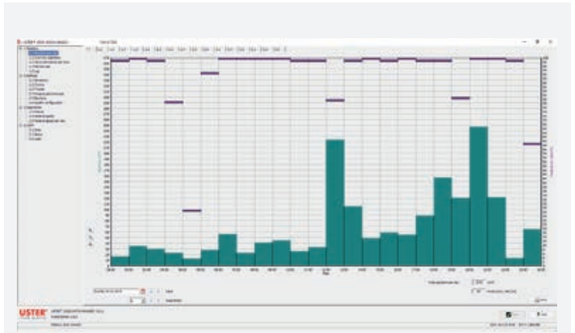
Easy data handling, now and in the future

USTER is expanding the customer experience in the ‘digital world’. Latest instruments include technology to explore new ways of monitoring foreign matter – enabling optimization of the fiber cleaning process with data-based recommendations. With USTER® *JOSSI DATA MANAGER*, producers have a powerful data reporting tool to help maximize the system’s benefits.

- New graphical user interface, future-oriented with more capacity
- Fast and reliable data

Future-oriented new graphical user interface

A quick overview of running performance in real-time, on a new large touchscreen, presents the most relevant data at a glance. User-friendly, quick and intuitive navigation makes data handling easy. Fit for the digital future: the system offers more capacity and the display more space to visualize analyzed data.



Fast and reliable data

USTER® *JOSSI DATA MANAGER* extends the on-screen data display to provide detailed analysis. This guides producers towards the right choices about raw material purchasing – based on real data – to manage their biggest production cost element. Other useful functions for improved handling of the process include storage of previous machine settings data, such as the ‘stop-go ratio’ of the fine opener.

High reliability and fast maintenance

USTER® *JOSSI VISION SHIELD N* is built to allow fast and easy access for maintenance, with minimum disruption to production. The core functions – accurate detection of defects and optimization of quality – remain paramount. A high level of long-term reliability is also guaranteed, through top-quality Swiss design, using premium components and construction standards.

- Designed-in features make maintenance simple
- Built to last
- Swiss reliability, for sustained system efficiency and performance

Designed for simple maintenance

USTER® *JOSSI VISION SHIELD N* is designed for quick and easy access to key components such as the Illumination set. Usually, there is no need to remove machine parts, so that routine tasks can be performed in a short time. The tight build integrity of the system also prevents dust accumulation.

The new special LED lights in USTER® *JOSSI VISION SHIELD N* guarantee a long useful life and an even better detection efficiency, thanks to better and more uniform illumination.

Built to last

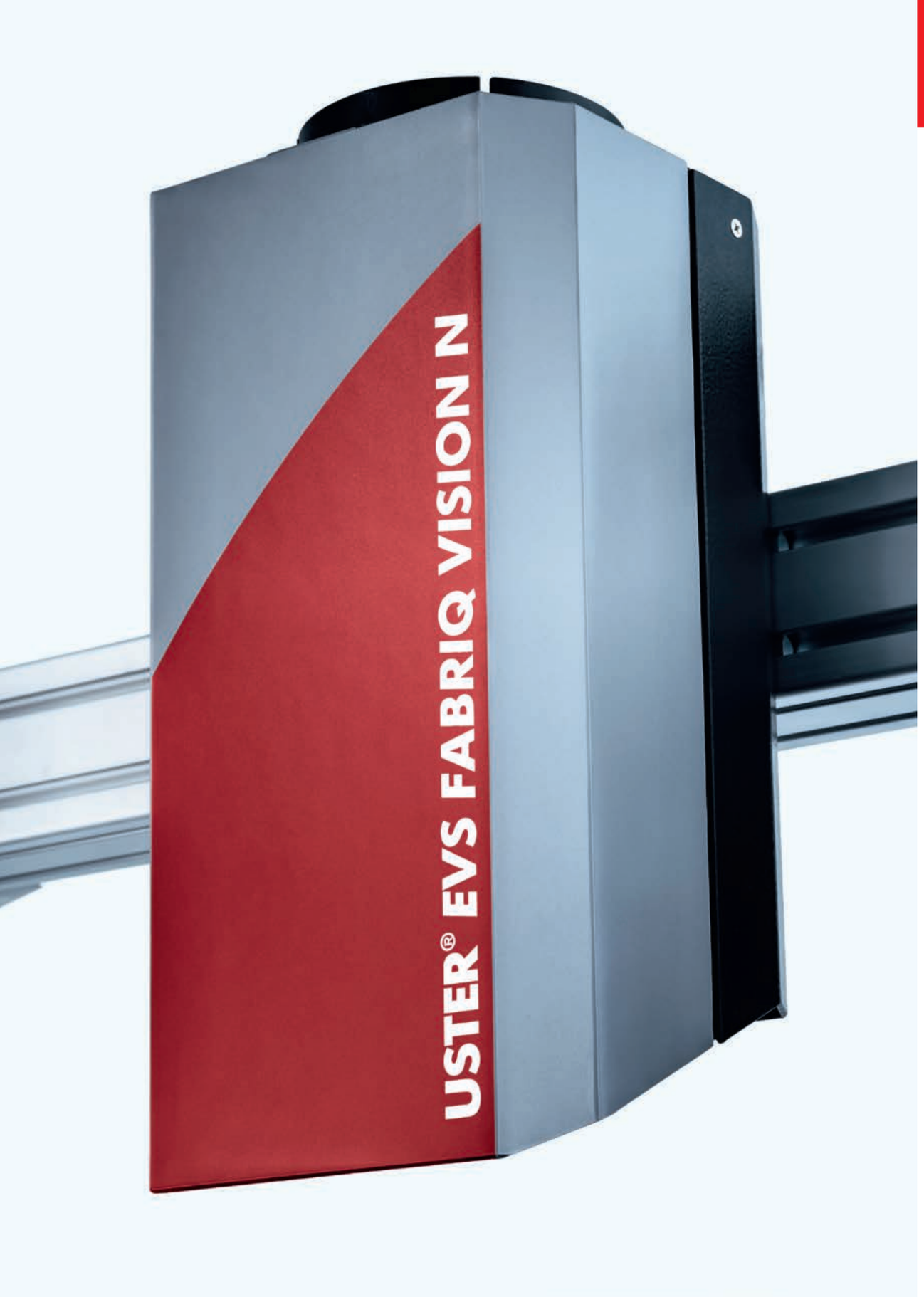
USTER® *JOSSI VISION SHIELD N* implements specific solutions for endurance in the most challenging environments and with any type of material.

Stainless steel inserts, in areas which come into contact with the fibers, guarantee unmatched durability for USTER® *JOSSI VISION SHIELD N*.

Swiss reliability and efficiency

High detection accuracy and product quality are fundamental principles, inspiring every USTER® product.

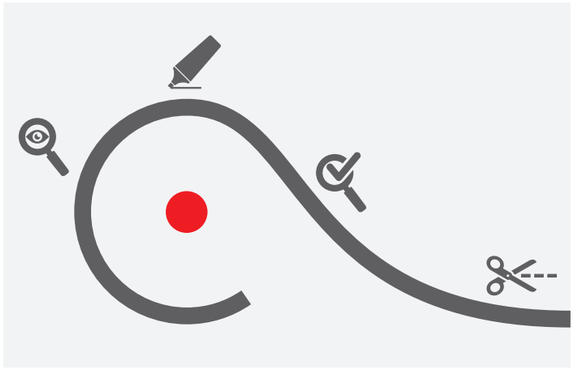
Reliability is a given: with solid construction, intelligent cooling and software based on a robust industrial operating system, lifetime efficiency is assured.



USTER® *EVS FABRIQ VISION N*
The nonwovens quality assurance system

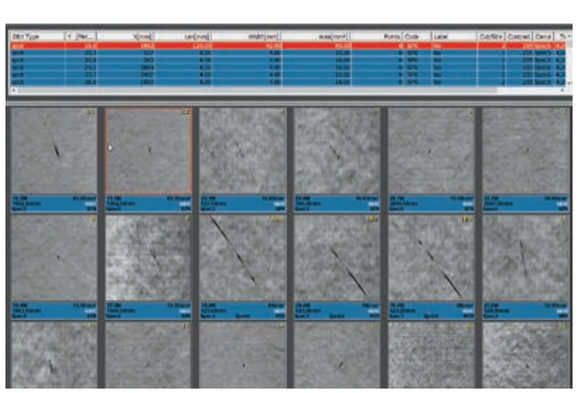
Nonwovens producers need to guarantee reliable quality. This requires a consistently high rate of fault detection. USTER® *EVS FABRIQ VISION N* ensures this, by using automated inspection during the production process – removing the need for costly manual inspection. The system's ability to capture any visible faults allows web yield to be optimized and prevents claims.

- Improved nonwoven quality through automated inspection
- Automated classification for consistent quality
- Optimization of raw material usage



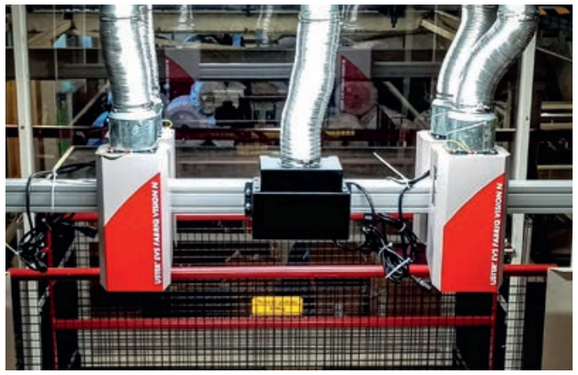
Improved nonwoven fabric quality through automated inspection

Real-time process monitoring detects, records and locates all faults in every roll of nonwoven material. USTER® *EVS FABRIQ VISION N* can capture any visible fault, at line running speeds. Inspection is objective, accurate and consistent. It removes the need for slow, costly and unreliable manual inspection and upgrades operators to higher-skilled jobs.



Automated classification for consistent quality

USTER® *EVS FABRIQ VISION N* provides real-time alerts for operators, displaying all detected faults during production. After inspection, each roll can be automatically classified by USTER's intelligent software. Each image is given a coding, allowing any 'over-detection' to be easily filtered out. The system uses a continuous learning process to identify and log the main defects. In this way, it builds the model for automatic classification.Users can set their own quality standards for different types of nonwovens so as to increase the efficiency of the grading process.



Optimization of raw material usage

First-quality yield improves significantly. The combination of a full map of web faults and the cut optimization module means more first-quality rolls can be produced and bad quality taken out.

USTER® *EVS FABRIQ VISION N* is designed for easy integration into the production line.

USTER® *FABRIQ EXPERT*
Easy-to-use monitoring and control system

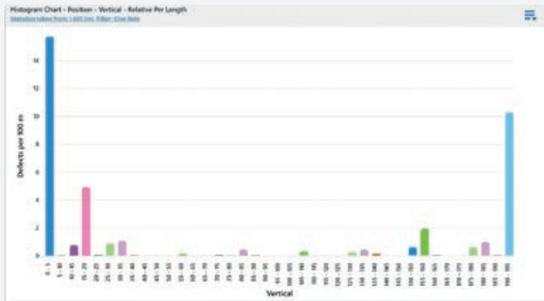
Manufacturers gain major advantages from comprehensive statistics on inspected nonwoven fabric and online monitoring of the systems. USTER® *FABRIQ EXPERT* collects quality maps centrally for each roll. Fully-customizable reports are displayed at the on-screen dashboard. The system guides managers and operators to evaluate faults from different lots and minimize waste.

- Quality statistics, including trends for all produced rolls
- Detailed quality analysis by position of faults
- 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 timeframe, roll, machines and more.

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



Detailed quality analysis by position of faults

Fully-customizable analysis with USTER® *FABRIQ EXPERT* allows users to select vertical or horizontal zones of an inspected roll. In a selected section – edges, for example – fault types can be filtered to initiate actions and control the defect if necessary.

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

Interpretation of current quality status, with context information

USTER® *FABRIQ EXPERT* provides an overview of all connected USTER® *FABRIQ VISION N* systems in the plant. The focus is to show quality information – for example the number of faults over a given time – within the relevant context, such as running status or production speed.

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.

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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