



USTER®

USTER® SENTINEL

The ring spinning optimization system

What is Think Quality™?

What is Think Quality™?

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

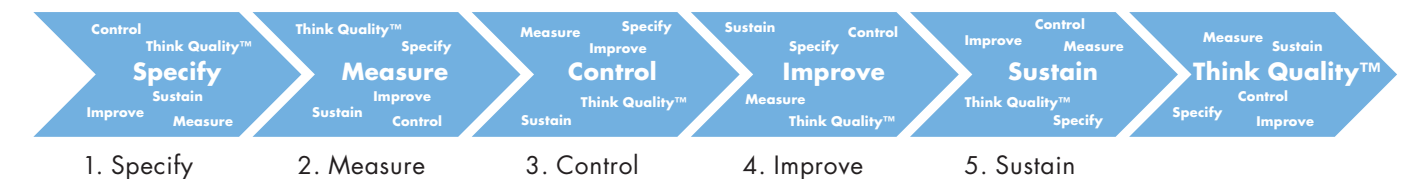
Today's textile markets are highly-competitive, throughout the entire value chain from fiber to fabric. Customers expect unique products, at the right quality and free from unacceptable defects, every time. Mills need to manufacture economically, with best-possible use of resources – especially raw materials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



USTER® SENTINEL – The ring spinning optimization system, increasing profitability where it matters most

The USTER® SENTINEL takes care of measuring and controlling the most critical parameters in ring spinning – the process that contributes most to yarn manufacturing costs.

USTER® SENTINEL monitors the productivity of all spindles and provides all the links and information that help yarn producers to make optimization decisions at ring spinning based on reliable facts. Linking ring spinning performance data from USTER® SENTINEL with quality information from winding reported by the USTER® QUANTUM 3 mills can correlate intelligently powerful information throughout all process steps in spinning mills, for effective and preventive optimization leading to sustainable profits.



Beyond end-break detection: ring spinning optimization with USTER® SENTINEL

Maximizing profitability where it matters most: USTER® SENTINEL measures and controls the critical parameters in ring spinning. Mill conditions, machine speeds, parts and maintenance, and personnel reaction times are all crucial for profitability. End-break detection with USTER® SENTINEL is the starting point for best-practice in optimization.

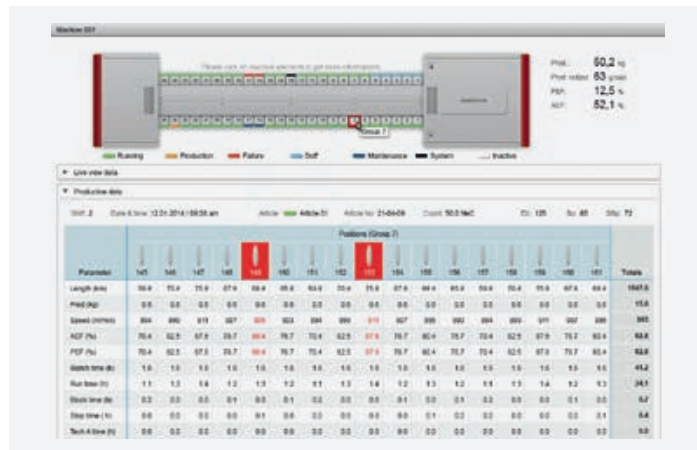
- Bobbin build-up report – for efficient reduction of end-breaks
- Comprehensive performance data – in real-time
- From overview to detailed drill-downs – fast and flexible reports



Bobbin build-up report

End-break levels are a key indicator of ring spinning performance. USTER® SENTINEL provides an intuitive bobbin build-up report for every parameter influencing end-breaks. Clear visuals point to exact reasons for breaks, making optimization easy. Spinners can then make the required improvements focused on:

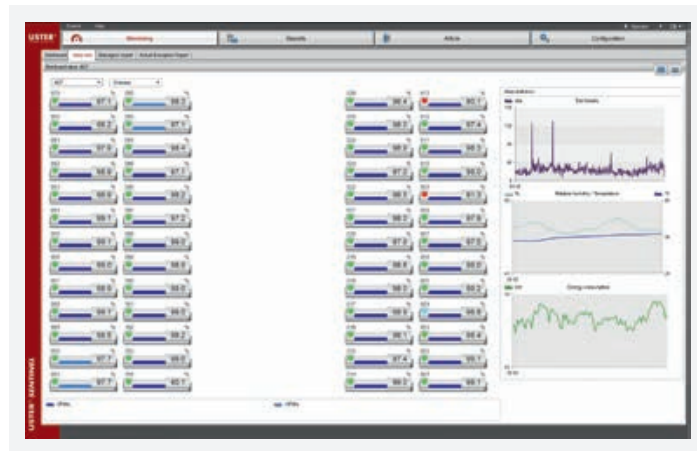
- Ambient conditions
- Wear of mechanical parts
- Machine speed
- Personnel
- Energy consumption



Real-time performance overview

USTER® SENTINEL provides mills with real-time information, tailored to their specific needs. Its easy-to-use software presents a fast overview of machine performance, focusing exactly on the most relevant production and laboratory data.

- Expert system, for clear guidance
- Quick, clear display of machine data
- Energy consumption overview
- Dashboard arrangement for intuitive navigation
- Tablet connectivity



Fast, flexible and detailed reports

The USTER® SENTINEL software supports lightning-fast switching from mill overview down to the section – or even a single spindle – where there is a problem. Areas needing attention are highlighted by color.

- Clear, self-explanatory color coding
- Real-time diagrams for end-breaks, speed, power consumption, temperature and humidity, for every machine
- Detailed event log for every machine

Information drives ring spinning efficiency: managing energy costs, mill conditions and personnel

USTER® SENTINEL offers far more than simply monitoring each spindle on ring spinning machines. The system powers wide-ranging management of the spinning process, based on real-time analysis. Fast overviews and flexible reports enable instant and decisive action to improve profitability.

- Monitoring and analysis of power consumption, to control energy costs
- Details of ambient conditions: the starting point for minimizing end-breaks
- USTER® SENTINEL integrates personnel management in one place



Monitoring and controlling energy costs

Ring spinning accounts for 40 % of the total power consumption in yarn manufacturing. USTER® SENTINEL analyzes the differences in energy consumption by relating machine speed to product quality and offers practical advice on settings optimization. Maintaining the optimum energy/production ratio has a great impact on mill profitability. Machine speeds can be optimized to produce the highest yield of the right quality at lowest cost.



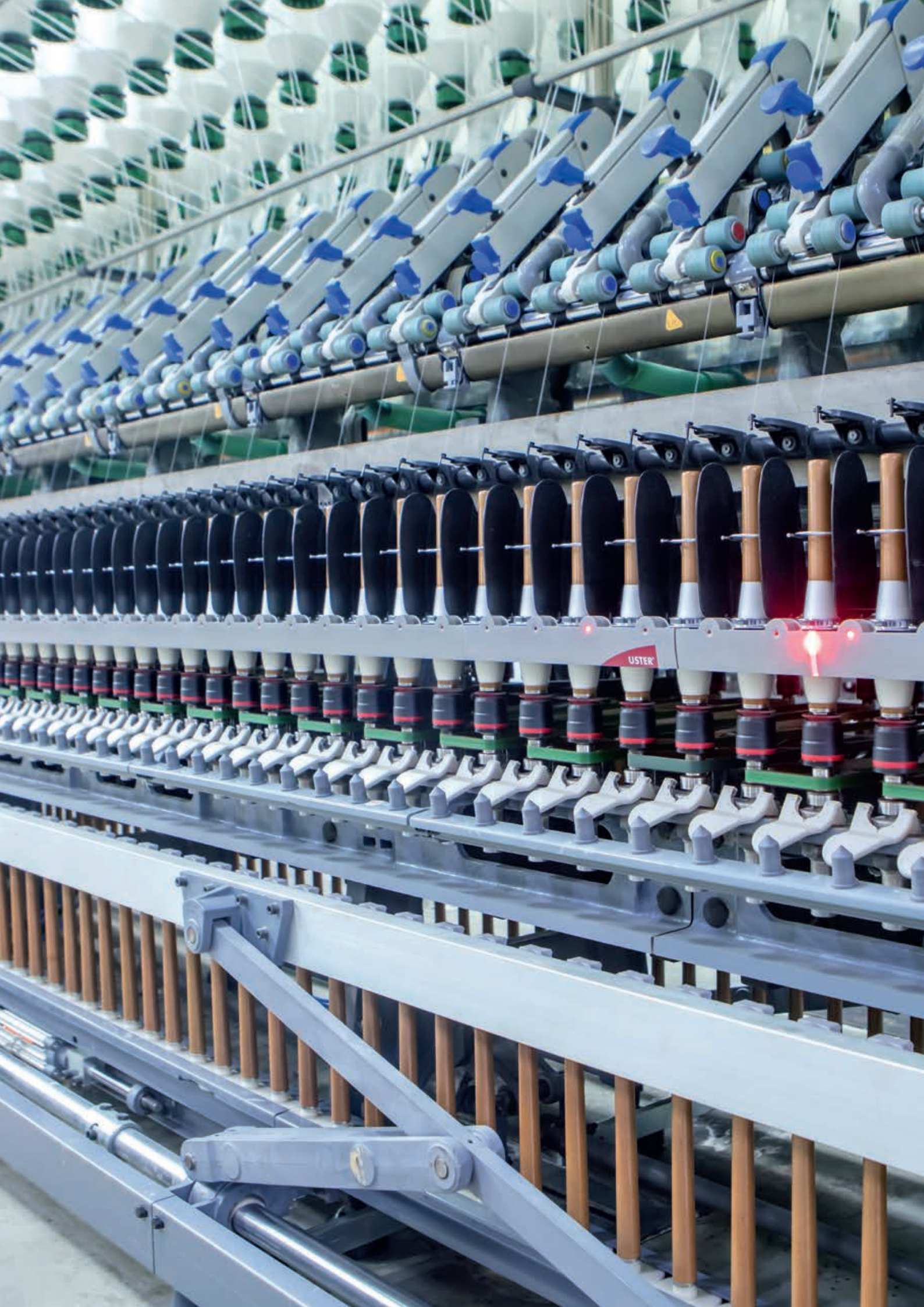
Controlling ambient conditions reduces end-breaks

USTER® SENTINEL uses powerful sensors to measure the humidity and the temperature – providing virtually complete control of ambient conditions on the ring spinning floor. The reports on deviations from the required temperature and humidity levels allow immediate correction. This lowers the number of end-breaks by reducing the negative effects of mill environment changes, such as twisting and charging at the spindles.



Integrated personnel management

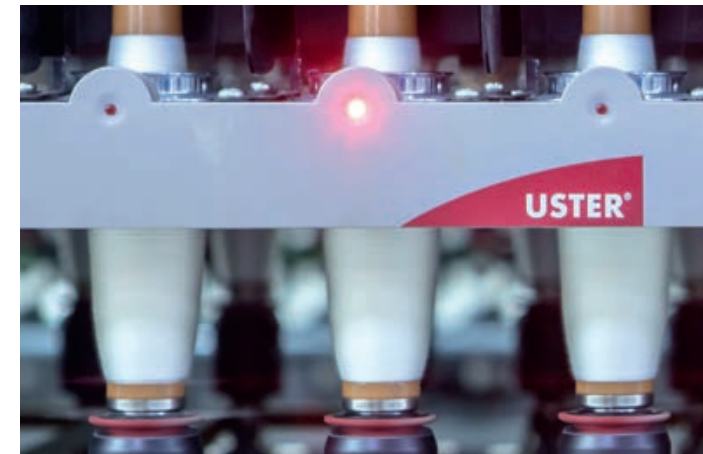
USTER® SENTINEL handles complete personnel management, including shift planning and assigning staff for all machines in the system – integrated with monitoring of critical ring spinning parameters. Reports cover staff efficiency and performance overviews of the ring spinning team. This makes personnel management in ring spinning fact-based and less time-consuming.



Quality secured, costs controlled: how USTER® SENTINEL protects profitability

Ring spinning is a critical step in yarn production. With USTER® SENTINEL, the risk of quality issues is minimized by quick identification of badly-performing spindles and clear visualization of optimization possibilities for immediate action. The capabilities of USTER® SENTINEL enable higher operator efficiency – for better machine productivity and less pneumafil waste.

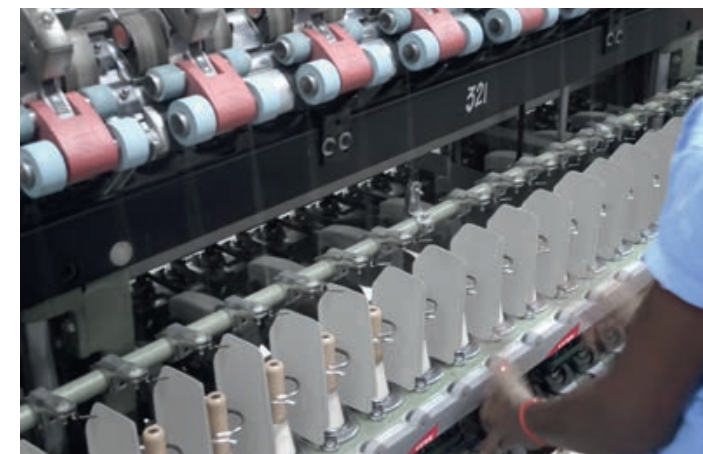
- USTER® SENTINEL enables faster staff reaction to potential quality issues
- Ergonomic design enhances functionality and facilitates access
- Off-Standard feature safeguards against hidden quality risks



Enabling time-saving responses

USTER® SENTINEL enables staff to react faster to end-breaks, improving production yields and reducing quality issues.

- USTER® SENTINEL guides machine operators through clear and simple spindle and section LEDs
- The chain break alarm prevents production losses, roller damage and quality deterioration
- USTER® SENTINEL visually identifies idle, rogue and uneven spindles, as well as spindle slip problems
- Alerts also warn when climatic conditions are fluctuating or out of tolerance for a machine



Ergonomic design for better functionality and access

USTER® SENTINEL ensures easy and effortless access for piecing, since its sensors do not need to be positioned too close to the ring.

As the slimmest system on the market, USTER® SENTINEL also requires low power from the ring rail drives.



Off-Standard feature pinpoints unseen quality risks

Ring spinning can produce unexpected problems. Those which cause an end-break are identified by the monitoring system and resolved. But other issues can go unnoticed, yet cause quality deviations.

The Off-Standard feature detects all the many possible risks of this kind, stopping the production of yarn with quality issues. Examples include:

- Roving running on top instead of below the metal bar
- Fluff blocking trumpets
- Damaged bottom aprons

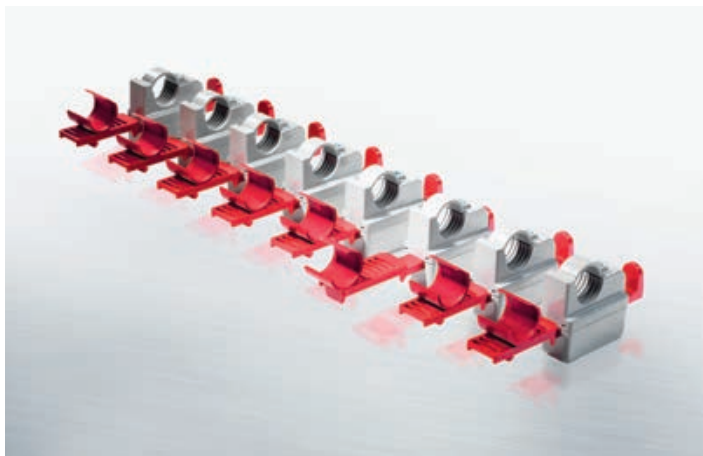
USTER® ROVING STOP: complete control over end-breaks, for maximum savings

USTER® SENTINEL offers superior detection of end-breaks in ring spinning – and in combination with USTER® ROVING STOP it also provides complete control over end-breaks. By stopping the roving immediately an end-break is detected, damaging consequences are avoided. USTER’s new Roving Stop model is designed for installation on a wide range of machine types.

- Roving Stop brings significant raw material savings, for rapid ROI
- Improved production efficiency by preventing lapping
- Intelligent prevention of defective yarn production: a quality security tool

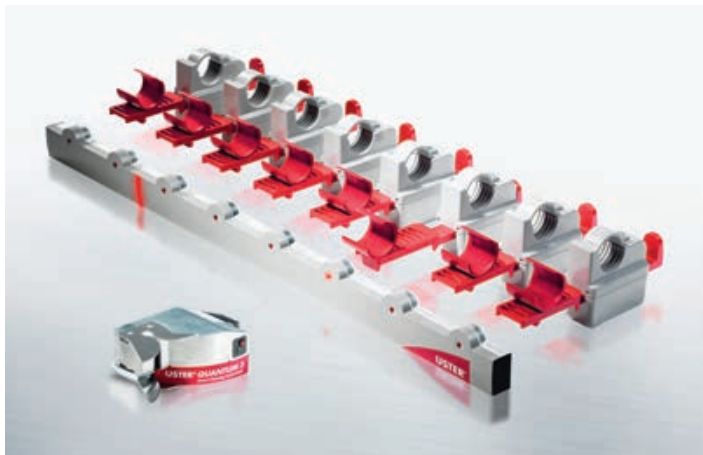


Raw material savings and short payback
The more time operators spend mending end-breaks, the greater is the amount of waste created. To avoid this, a reliable Roving Stop mechanism is essential, to allow the fastest reaction time during spinning. Up to 70 % less pneumafil waste equates to a saving of nearly 1 % in raw material, based on current spinning conditions. The result is a fast return on investment.



Preventing lapping maintains efficiency
Roving Stop prevents one of the worst and most common problems on the ring spinning machine: lapping. Fixing it takes time and skilled staff. Lapping is caused when an end-break is combined with an issue on the suction device. It can lead to component damage, as well as affecting fiber flow at adjacent spindles – multiplying the quality issues.

Roving Stop stops this negative chain of events, maintaining ring spinning efficiency.



Quality security tool
The USTER® ROVING STOP becomes a function of the ring spinning machine, just as the yarn clearer does in winding. USTER® RSO 3D – for ring spinning optimization – uniquely enables outlier spindles to be identified, based on quality data from the yarn clearers. In such cases, the Roving Stop function halts the production of defective yarn. This equates to the USTER® QUANTUM 3 blocking bobbins on the winder. The intelligent system prevents the production of poor quality yarn, working as an effective quality control device.

Process optimization based on real-time data

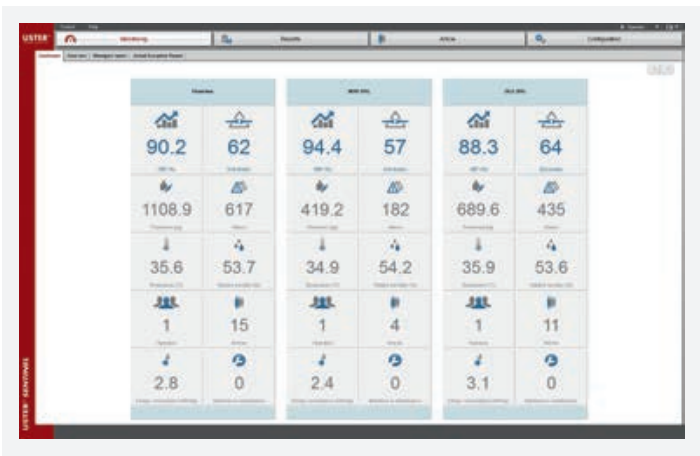
USTER® SENTINEL with Roving Stop significantly increases efficiency in management of ring spinning. Comprehensive data enables quick and decisive actions for process optimization. Optimum routines can be established, with access to relevant information at the right spot – now available on mobile tablets – for faster operator guidance and a better working environment.

- Performance monitoring in the ring spinning department at a glance
- Machine displays of real-time information: the key to rapid fact-based responses
- Always at hand: access to machine information through tablet view

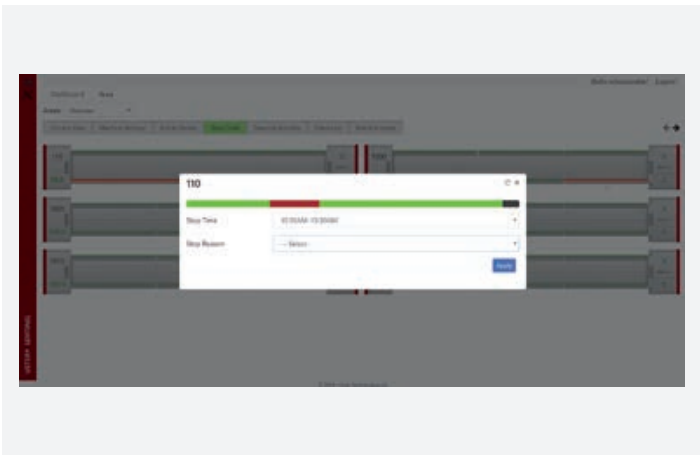


Performance monitoring overview
Reports from USTER® SENTINEL and Roving Stop about ring spinning machine performance are designed for understanding at a glance.

Users can configure an individual ‘workshop dashboard’ overview of relevant information, to understand the status at ring spinning and to react as fast as possible if needed.



Machine displays enable immediate responses
End-break information, outlier spindles and machine status details are all available right at the machine display. Operators have access to information closest to where action is required. Machine displays support work efficiency by clearly guiding staff to where attention is needed.



Machine interface available on tablet
The latest innovation provides the fastest-ever way to fix end-breaks, increasing efficiency in the ring spinning department. USTER® SENTINEL information can now be displayed in real-time on a mobile tablet, connected to the system – and ideal for mounting on spin bikes. This allows changes to machine and product settings to be made directly from wherever the operator is located. Remote control of ring spinning management becomes a reality.

USTER® QUALITY EXPERT



USTER® QUALITY EXPERT is the Quality Management Platform™ for advanced process optimization across yarn manufacturing processes. A single system provides control, securing fiber, yarn and fabric quality. A combination of 100% in-line monitoring, precise laboratory testing and integrated intelligence delivers the power to predict potential faults and prevent claims. USTER® QUALITY EXPERT is available in two versions: either as a standalone solution via a dedicated client-server – or integrated within USTER® TESTER 6.

USTER's Application Intelligence is the foundation for merging textile application know-how with insightful analytics and connected products. Smart algorithms guide data-based decisions, extending the analytical possibilities as each additional instrument is connected.

USTER® QUALITY EXPERT and its Value Modules:

- **Alarm center** – creates awareness and triggers action
- **Mill analysis** – insightful analytics for data-based decisions
- **Yarn prognosis** – increases credibility between spinners and yarn users
- **Total Contamination Control** – for managing remaining contaminants in yarns at minimum possible cost
- **Ring Spinning Optimization** – the link to productivity and quality

USTER® SENTINEL provides intelligent connections for RSO (Ring Spinning Optimization) and USTER® RSO 3D

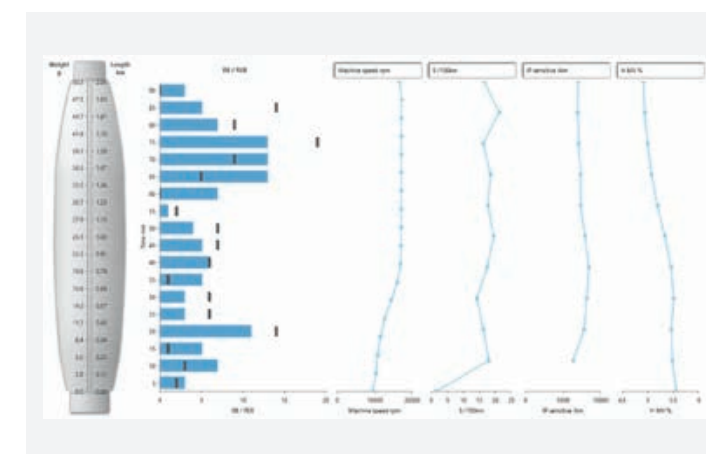
USTER® SENTINEL comes with unique connections. The RSO Value Module focuses on great cost saving potential: ring spinning. For the first time, mills can intelligently correlate ring quality data and winding quality data in a single system, for significant profitability increases. The even more powerful USTER® RSO 3D goes further, with quality mapping and automated machine interaction.

- RSO – in-line assistance with ring spinning and winding alerts by Assistant Q
- RSO – spindle speed optimization for higher performance while building the best possible cops
- Quality mapping of individual spindles with USTER® RSO 3D via Muratec QPRO EX/FPRO EX



In-line assistance with ring spinning and winding alerts

Assistant Q now offers even more smart alerts: deviations in ring spinning machines are now detected and alerted immediately. Essential conditions of the ring spinning process, such as relative humidity and temperature, are continuously monitored and alerts triggered by significant changes. Together with winding alerts from USTER® QUANTUM 3, complete coverage of quality and productivity is achieved in both processes.



Higher performance while building up best cops

A comprehensive speed curve analysis, and its impact on quality throughout the cop build-up, are elements of the changed way of optimizing ring spinning performance. Cop build-up quality is the new dimension of optimization that enables spinners to select correct machine settings for higher production yields, while keeping quality at the desired levels. Furthermore, the comparison of ring frame performance between different machines is now possible.



USTER® RSO 3D: quality mapping of individual spindles

With the third dimension of quality, individual quality data for each spindle position enables quality mapping across the ring spinning machine. This helps to identify outlier sides, sections or spindles, in addition to supporting maintenance decisions.

Collaborating seamlessly with Muratec QPRO EX/ FPRO EX spindle identification and USTER® QUANTUM 3, USTER® SENTINEL stops affected ring spindle positions for proactive prevention of poor quality.

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.

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.



Uster Technologies AG

Sonnenbergstrasse 10
8610 Uster
Switzerland
T. +41 43 366 36 36
F. +41 43 366 36 37
sales@uster.com
www.uster.com