USTER® QUANTUM EXPERT 3
The yarn quality assurance system
Spinning quality yarns is a job for real professionals. Complex processes and varying raw materials call for expert knowledge and careful monitoring, to ensure customers receive the yarn quality they require. Now there is a professional solution which enables spinners to control quality standards precisely, eliminate waste and maximize production efficiency. Harnessing the powerful data collection features of USTER® QUANTUM 3 yarn clearers, the latest USTER® QUANTUM EXPERT 3 software package provides exactly the expertise spinners need to take charge of their quality. The system can analyze winding machine performance, identifying trends and potential problems. Optimum yarn clearer settings keep mill productivity moving, while ensuring consistent quality levels.

Case studies from leading mills, outlined in this brochure, prove that USTER® QUANTUM EXPERT 3 delivers real practical benefits – the quality, productivity and profitability that the professionals demand.

USTER® QUANTUM EXPERT 3 is the toolbox with practical tools that enable spinners to use the valuable data from yarn clearers to assume total control of the winding process. It shifts the focus from collecting and analyzing data to triggering rapid, proactive responses to ensure that every package is delivered at the expected quality and as economically as possible, every day!

The major challenges facing spinners in today’s demanding environment are addressed, including reduction of operating costs, ensuring that all relevant data is simply and easily available, identifying opportunities for improvement while staying in control of processes, and of course ensuring that the right levels of quality are produced at a consistent level.

Take steps towards optimization of the winding process and provide your personnel with the tools to achieve excellence.
Simplify data handling

Spinning mills without monitoring systems are likely to find themselves at a massive disadvantage when trying to deal with key production and quality data. Opportunities to improve profitability are missed due to the difficulty in making sense of crucial information and reliance on slow, complex and costly methods. USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3 solves all these problems, making data collection automatic and efficient, combined with secure storage, quick reporting and access. So mill managements can focus on the really important decisions and actions.

1. Easier and less expensive data collection
2. Transparent information, easily accessible across departments
3. Assured safe storage of mill data
4. Output to external software

Non-automated data collection typically gathers only a fraction of the available information, limiting key performance gain opportunities. With automated collection, right from the first day of implementation, users of USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3 will see the improvement in their information flow. Simple menus and pre-defined reports ensure fast and efficient access to key data for everyone involved, for the lowest effort and cost.

Typically (manually) collected data is categorized, and stored separately in printed form – difficult to retrieve – so there is always a delay before management receives key reports or feedback on queries. With USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3, all data is stored in one place, accessible as practical reports for instant retrieval by appropriate personnel, improving communication across departments.

Reports are fully customizable, so they can easily be configured to suit each relevant mill function, with access fixed accordingly. USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3 delivers tailored reports for every personnel level, from Maintenance Engineer to General Manager.

For mills needing to export information about production, efficiency, quality and waste for use in other software (e.g. ERP, CRM, HR), USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3 has an automated function to output data in .csv format, for further use with any other mill software.

Case study – improved efficiency through better data availability

A 48 000-spindle mill in India using manual data collection was utilizing less than 5% of the available information from yarn clearers. After installing USTER\textsuperscript{\textregistered} QUANTUM EXPERT 3, the mill is now collecting 100% of this information, reducing the human effort. Information flow to management dramatically improved, resulting in a 1.2% efficiency improvement within the first week of operation.
Winding is the spinner’s last chance to inspect a yarn before it is packaged and delivered to customers. This is why it is critical to be in control of quality standards, yarn clearer settings and outlier levels – while also maintaining optimum production efficiency. USTER® QUANTUM EXPERT 3 allows spinners to have this control, round the clock: all the key data is available and every potential problem flagged up in advance.

1. 24/7 accessibility
2. Continuous monitoring of critical parameters
3. Focus on key issues
4. Control of articles and settings

Whenever and wherever – with USTER® QUANTUM EXPERT 3 all information from yarn cleaners is always available and easily accessible. Multiple users can work concurrently, even remotely, so management can improve communication between departments and make fast decisions, based on reliable data.

USTER® QUANTUM EXPERT 3 delivers all the vital information, all the time. Productivity, cuts, settings, quality, classification of yarn events and alarm indicators – all are recorded continuously, with easy access for analysis.

Users can instantly zoom in on the key issues needing attention, with specialized reports highlighting the machine positions or production groups outside preset tolerances. Exception reports boost efficiency and speed up reaction time by pinpointing areas in the mill where corrective action is required.

Clearer settings are the reference point for quality assurance in the mill. Both current and historic settings need to be checked and any differences speedily identified. The settings reports with USTER® QUANTUM EXPERT 3 deliver this information quickly and simply for every article. This allows the Quality Manager to ensure settings comply with the mill’s specific standards.

Case study – efficiency gains with correct machine settings
Due to centralized management of settings, a large 100,000-spindle spinning mill in China, running multiple articles, eliminated incorrect settings on machines producing the same article by about 80%. Furthermore, the exception reports helped the mill to raise efficiency levels by 0.5–1% across winders.
Reducing costs

Installing USTER® QUANTUM EXPERT 3 brings wide-ranging advantages for a spinning mill. By automating tasks once done manually, the system delivers the dual benefits of reduced costs and heightened quality awareness. Mills are finding it harder to recruit experienced personnel, but USTER® QUANTUM EXPERT 3 can solve the problem by taking charge of functions such as measuring quality and outliers, improving yarn clearing performance and boosting overall machine efficiency – and a lot more besides.

1. Minimized quality control costs
2. Safeguards against claims
3. Reduced yarn waste
4. Reduced rejects level

1. USTER® QUANTUM EXPERT 3 guides the Quality Manager to quickly locate the source of quality deviations in production. In-process data from the several hundred yarn clearers is continuously accessible, so the Quality Manager can rapidly trace problems with much less effort.

2. Mills can deal with potential quality problems, correcting them before they cause customer complaints and claims. The exception handling and central clearer control functions of USTER® QUANTUM EXPERT 3 provide this valuable safeguard.

3. By reducing yarn waste significant financial benefits are readily achievable with USTER® QUANTUM EXPERT 3. The key is the optimization of clearer cut limits, based on the system’s detailed data on both cuts and remaining defects across the whole winding room. This optimization of the clearing limits across all production places and not only one machine can result in major cut savings.

4. The system’s exception reports identify positions or groups with excessive alarms. These point directly to the root cause of the problem and systematic analysis will ultimately allow users reduce the number of rejected bobbins over time, resulting in considerable savings in waste.

Case study – major reduction in waste through settings optimization

A cotton spinning mill in Pakistan with 28,000 spindles noted improvements achieved over a year of using USTER® QUANTUM EXPERT 3. Optimization of cuts resulted in an overall 4% reduction in yarn waste, while the saving for some articles was up to 12%. Using alarm exception reports and analysis with USTER® TESTER 5, the mill reduced the rejected bobbins ratio to 0.5% from over 1% – equivalent to 150 bobbins per shift.
Mills invest in USTER® QUANTUM EXPERT 3 to optimize their yarn quality standards and avoid unnecessary waste. The software supports precise tuning of clearing limits for each article and helps users pinpoint any problems in processes, machinery or raw material. That means consistent quality and tightest control over production costs.

Detailed analysis of winding problems is simple with USTER® QUANTUM EXPERT 3. Quality alarms highlight technical issues with machinery and settings, and point to likely causes and solutions.

- Analysis of quality variations
- Analysis of long-term trends
- Machine and shift efficiency improvement
- Effect of raw material variations

Quality variations between production machines running the same article are a common cause of claims. Common differences between machines in clearer cut levels up to 20% and in rejected bobbins up to 80% can lead to overall efficiency fluctuations of up to 5%.

Quality reports from USTER® QUANTUM EXPERT 3 highlight the reasons for these variations and consequently trigger actions to bring them down, maintaining high performance levels.

Variations arising due to bale laydown and during the preparatory stages before ring spinning are difficult to observe without a long-term overview of the quality being produced. USTER® QUANTUM EXPERT 3 reports can be switched easily from shift view to monthly view, to assess quality or production trends. Fluctuations between bale laydowns, doffs (in the case of link winders) and between individual machines can be tracked, to continuously optimize performance.

Efficiency results from a combination of the machine operator, machine performance, clearer settings, material quality and production flow. USTER® QUANTUM EXPERT 3 allows monitoring of joints, doffing, technical alarm and textile alarm times, both by machine and by shift. With this combination of information the mill obtains clear guidance towards areas with potential for improvement.

Knowledge of the source of raw material purchased and its effective utilization is a permanent priority to manage profits. For example, increased foreign-matter content in raw cotton origin will be reflected in all the yarn made from it and has to be maintained within an acceptable range. Reports from USTER® QUANTUM EXPERT 3 make it easy for the mill to evaluate origins, varieties and mixing formulas by comparing article or lot performance of different raw material mixes, suppliers and seasons.

Case study – optimizing costs and quality

A cotton spinning mill in Turkey with 64,000 compact spindles with link winders utilized USTER® QUANTUM EXPERT 3 to analyze the effect of ring traveler change cycles on yarn hairiness and imperfections. Data from USTER® QUANTUM EXPERT 3 enabled the mill to define the optimum change duration for the travelers. Furthermore, differences in hairiness values between ring frames were reduced by an average of 5%.
USTERM® QUANTUM EXPERT 3 is one reference software for all the key functions of the spinning mill

Based on user needs:

**General Manager**
- I need to automate data handling
- I need a daily overview of mill performance
- I need to have the data in my ERP system
- I need quick response and support when needed

**Quality Manager**
- I need a quick overview of the quality produced
- I need to control quality exceptions and maintain them at a low level
- I need to control clearing settings to ensure quality to customer is maintained
- I need advanced quality analysis to optimize process and raw material

**Production Manager**
- I need a quick overview of production
- I need to control machine and shift performance
- I need to control production and waste

**Maintenance Engineer**
- I need to identify and fix mechanical exceptions
- I need to identify and fix splice exceptions
- I need to identify ring frames or preparation machines that need attention

Each role in the mill is important, with specific individual requirements. At the same time, all roles need to co-ordinate their actions to achieve success. USTER® QUANTUM EXPERT 3 is designed to satisfy both these goals.

**USTERM® QUANTUM EXPERT 3 user-oriented tools**

**Individual roles can benefit from features such as:**

- Automation of procedures previously requiring increased labor and administrative time. Reduces costs, upgrades the level and quality of information and increases workforce efficiency.
- Access to mill performance data, for both quality and productivity, anytime, anywhere, without delays.
- Automated export of data to other information systems running in the mill.
- USTER remotely supports the mill when needed, ensuring the continuous flow of information and uninterrupted use of the software.

- Quality reports for CV%, imperfections, hairiness, classification, cuts and remaining faults – for complete control of the quality produced.
- Exception reports for excessive quality alarms and cuts.
- Article management for quick overview of all settings and central management of articles. Specialized setting reports for comparison of settings and identification of differences.
- Long-term analysis of quality attributes, sorted by articles and lots, provides a clear view of the quality performance of the mill.
- Mill overview screen with current machine and group running conditions. One-click access to article, group and position reports, allows updated view within seconds.
- Shift and machine efficiency reports with detailed analysis of stops. Analysis can focus down to a single position if a detailed view is needed.
- Production reports display kg and packages produced, rejected yarn bobbins and level of cuts, to help control production and waste. For total control, rewinding quantity can also be controlled by filtering the rewinding groups.
- Exception report for machine-related cuts and technical alarms helps to find quickly which positions and machines to focus on.
- Exception report for joint cuts locates splices that need attention.
- The remote connection to CCU function makes it possible to check the splice scatter plot, the YARN BODY™, the classification and much more data for each position. It is an excellent tool for remote diagnosis and identification of problems at positions which appear as exceptions.
Centralized article management
Article management with USTER® QUANTUM EXPERT 3 gives total flexibility for settings and optimization, using either inbuilt smart limits or clearing limits selection. Settings for all produced articles are centrally stored for easy retrieval and downloading – and are secured against unauthorized access. This allows fast retrieval of settings used in the past for similar articles as a basis for assessing changes.

Run stop diagram
Graphs show the running condition of each winder and production group, indicating the time and duration of each event. The graphs help pinpoint repeating problems, trace all stops and monitor maintenance and cleaning intervals. In the case of link winders, it can also help to optimize speeds and the number of positions.

Clearing limit and YARN BODY™ comparisons
Clearing limit comparisons are a fast and efficient way of checking the consistency of settings throughout production. Combined with YARN BODY™ comparisons, they allow advanced fine-tuning of clearing limits and track if something changed with the raw material or process settings.

Limits editor
Users of USTER® QUANTUM EXPERT 3 can define their own limit sets for use in detecting exceptions. These can be applied to either specific articles or to all articles. The user has total control of exceptions, safeguarding the mill’s quality standards.

We started using USTER® QUANTUM EXPERT 3 from day one. The software is easy to understand and it is easy to train our employees how to use it."

India, cotton and cotton blends spinning mill, 35,000 spindles.

The software is available in our language and this makes it easier for our employees to operate."

Spain, synthetics spinning mill, 20,000 spindles.

The report editor is user-friendly, the reports are fully customizable and I can save my favorite reports for quick access."

Turkey, cotton spinning mill, 45,000 spindles.

In our production we process many different articles and small lots every day. With USTER® QUANTUM EXPERT 3 we have all information and settings centrally stored. This has improved our article management and reduced mistakes during article changes."

China, mélange yarn spinning, 35,000 spindles.

We used USTER® QUANTUM EXPERT 3 efficiency exceptions to control downtimes of each production group and achieved a 1.3% overall efficiency increase of the winding department."

Pakistan, cotton spinning, 53,000 spindles.

With USTER® QUANTUM EXPERT 3 we were able to get reliable production and quality data in our ERP system. We avoided mistakes that happened with manual entries and reduced workload of the personnel."

Turkey, cotton spinning, 70,000 spindles.
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 200 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 three technology centers, five 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.