



## **USTER® QUANTUM 4.0**

The connected yarn quality assurance system

## What is Think Quality™?

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

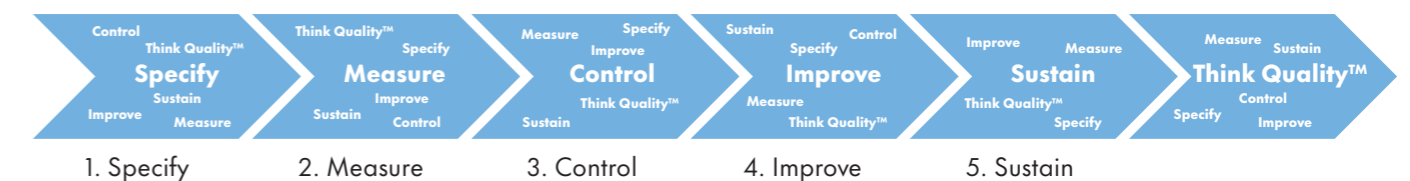
Today's textile markets are highly-competitive, throughout the entire value chain from fiber to fabric. Customers expect unique products, at the right quality and free from unacceptable defects, every time. Mills need to manufacture economically, with best-possible use of resources – especially raw materials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



### Uster Quantum 4.0 – the connected yarn quality assurance system

The yarn quality is secured in a flexible and efficient manner, cutting only what is necessary. With the preventive yarn clearing, defects can even be eliminated at the source, avoiding poor quality being produced.

In-line monitoring has developed, with intelligent connections which open optimization potential for textile mills in many ways.

Security, prevention and flexibility drive consistent quality and productivity.



## Security, prevention and flexibility

A new era of yarn clearing begins – embodying Security, Prevention and Flexibility. The ensemble of powerful new features, intelligent instrument connections and a simple user interface is built on well-established expertise in yarn clearing technology.

The Smart Duo technology gives spinning mills all the flexibility they need, in one yarn clearer, to protect their yarn quality in the best possible way. The connected yarn clearers – with 100% in-line monitoring – provide the link to enhanced optimization potential and insightful analytics. Smart processes, paired with trusted and reliable technology that simply works.

Uster Quantum 4.0 is cut out perfectly for spinning mills to achieve consistent quality at optimum performance – an easy and rewarding choice.



### Security

The new combined clearing and the enhanced detection modes protect yarn quality, while reducing cuts at the same time.



### Prevention

Disturbing defects cannot pass and issues in downstream processes are prevented. Upstream, connectivity to Uster's quality management platform contributes to 'preventive yarn clearing'.



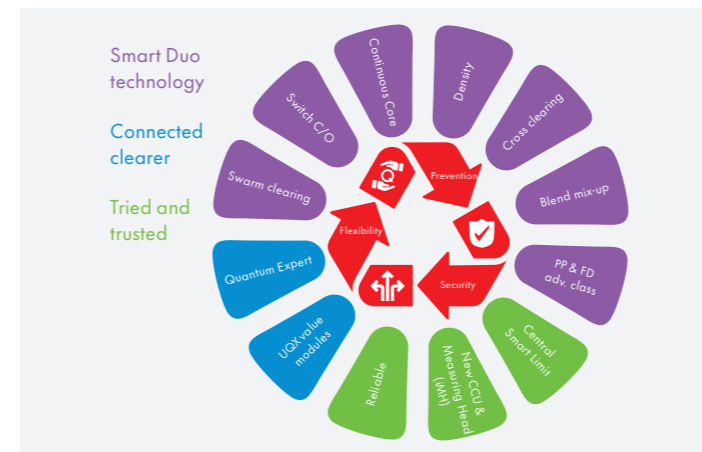
### Flexibility

One yarn clearer comprises both capacitive and optical sensors, applicable to different yarns and changing conditions.

## The most advanced Smart Duo clearing

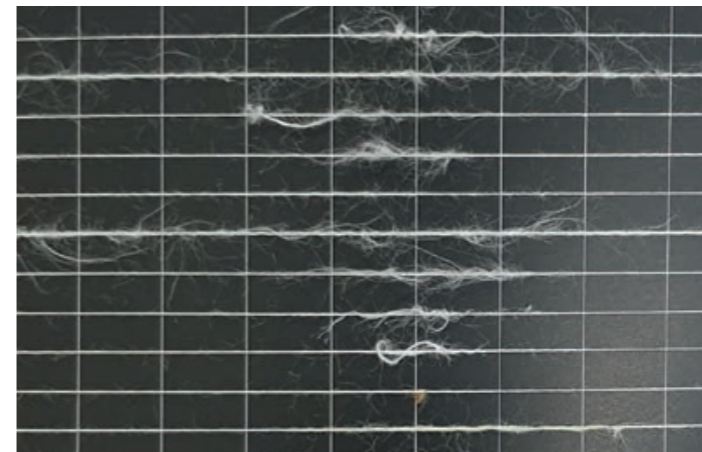
With intuitive and fully-functional yarn clearers, spinners hold all the cards. Optimal clearing identifies off-quality and prevents issues at source. A flexible, all-in-one route to quality and productivity goals. Uster Quantum 4.0 with its new Smart Duo technology serves all purposes – user-friendly and reliable.

- Meet spinners' needs
- A safeguard for yarn quality – Cross clearing
- Full flexibility for any yarn or ambient conditions



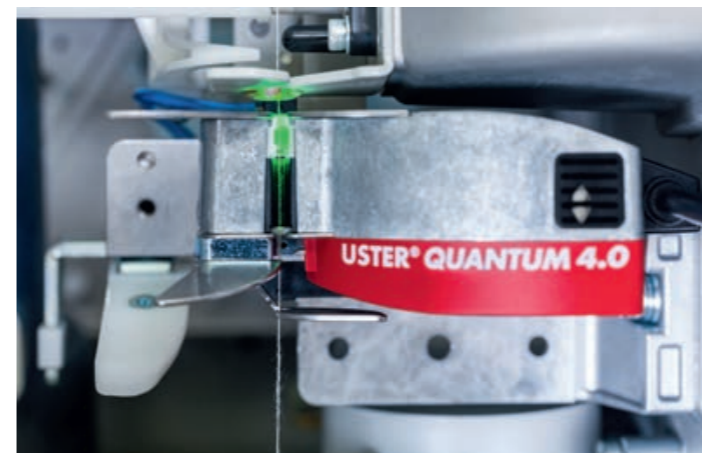
### Meet spinners' needs

The combination of both capacitive and optical signals opens opportunities for new detection channels. Crucial problems for spinning mills, such as twist differences or blend mix-ups, are now addressed in an effective way while reducing cuts at the same time. The defects are taken out before downstream processing, which prevents costly claims.



### Cross clearing

The strength of both signals is an asset for the value of yarn quality and smooth operations in downstream processes. With the so-called Cross clearing mode, the main signal is double checked by the assistance sensor in a smart and easy-to-set way. Hidden defects are uncovered and eliminated before passing through.



### Full flexibility with one yarn clearer

Spinning mills profit by deciding upon capacitive sensors with foreign matter detection. The all-in-one solution comes with a simple switch. Whether capacitive or optical basic measurement is selected, the clearer continues to apply all options, such as polypropylene, core yarn clearing etc.

For delicate materials, an extra conductive mode is available, in which the capacitive signal is disabled, for utmost security.

## No issues go unnoticed

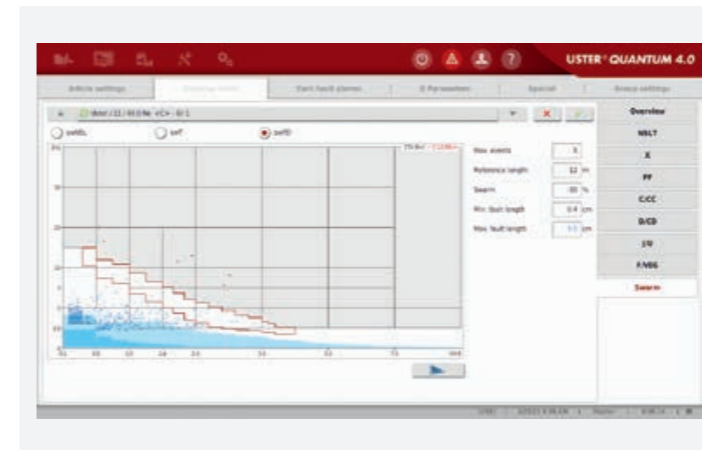
What keeps spinners awake at night? Spinning mills use intensive maintenance plans in their efforts to avoid outlier cops. But some still pass unnoticed and emerge as complaints in the fabric. Uster has an answer to this: Uster Quantum 4.0 adds security while reducing cuts at the same time, and thus addresses specific customer needs:

- Density detection reveals different twist levels or malfunctioning compacting devices
- Reduction of clearing cuts with Swarm clearing
- Bobbin mix-ups of different raw material compositions (optional)



### Density detection

A powerful remedy to another spinners' headache. Identifying a single off-standard cop from an endless number of ring spindles remains difficult. For instance, issues with compacting or twist can have an impact on the compactness of the yarn. The density function detects these issues after every splice, and continuously as standard channels of the new capacitive clearers with foreign matter detection.



### Swarm clearing

One more standard is offered detecting accumulations of small faults, that are only disturbing due to their frequency. Consequently, this channel focuses on an area below the clearing curve and cuts only when defects occur in a bunch. The initial settings can be kept open with a positive effect on the efficiency, yet taking out all disturbing faults.

### Blend mix-up (optional)

The blend mix-up function is designed to detect bobbin mix-ups of different raw materials in greige and white yarns. This is a typical error source in mills which produce similar yarn counts of different compositions. Hardly visible to the human eye, such issues show up as fabric barré, resulting from irregular dyestuff absorption. Blend mix-up clearing with Uster Quantum 4.0 prevents mix-ups from further processing and avoids scaling up on costs.

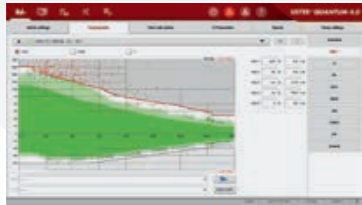


# Ready to tackle the major challenges in yarn production

Uster Quantum 4.0 is the efficient yarn quality assurance system with Smart Clearing Technology for standard and special applications. Ease of use is paired with the unique visualization of YARN BODY™ and Dense area. The new trend display reveals exceptions while detailed analysis is offered in the included Quantum Expert system.

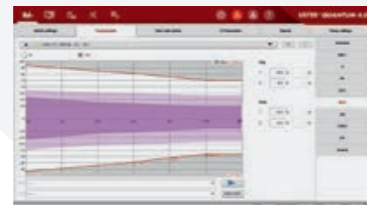
## Basic clearing

- Thick & thin places
- Count variation
- YARN BODY™
- Periodic faults
- Swarm NSL, T
- Quality data
- Splice



## Smart Duo clearing

- Cross clearing
- Density
- Switch capacitive/optical
- Conductive mode



## Contamination clearing

- Foreign matter
- Multicolored light sources
- Swarm FD/FL
- Vegetable matter
- Polypropylene
- Advanced classification FD & PP



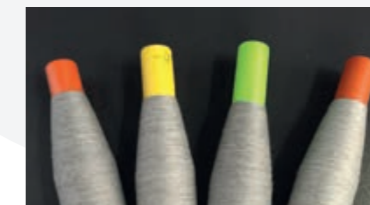
## USTER® QUANTUM EXPERT

- Real time control
- Central article management
- Ultimate data analysis
- Connection to Uster Quality Expert



## Special applications

- Shade variation
- Core yarn after splice and continuous
- Blend mix-up

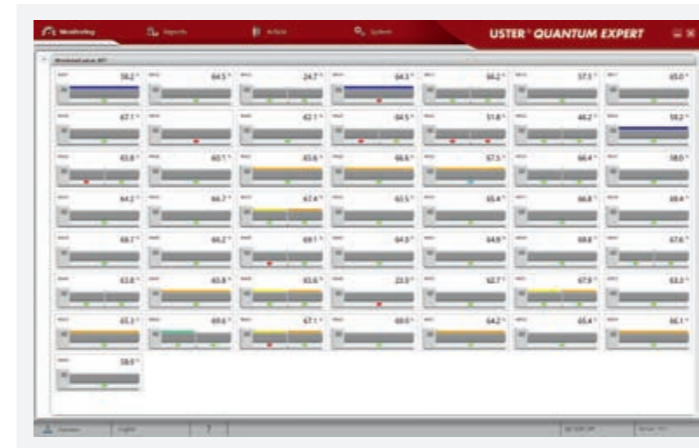


## USTER® QUANTUM EXPERT

### Automated data handling for insightful analysis

Spinning mills without monitoring systems are likely to be at a disadvantage when dealing with key productivity and quality data. Chances to improve profitability are missed, as it is difficult to make sense of the mass of information. To simplify things for the mills, and make the most of the valuable yarn clearing information, Uster Quantum Expert is included as part of the product.

- Stay in control
- Profit from simplified data handling
- Access insightful analytics for sustainable quality and productivity improvement



#### Stay in control

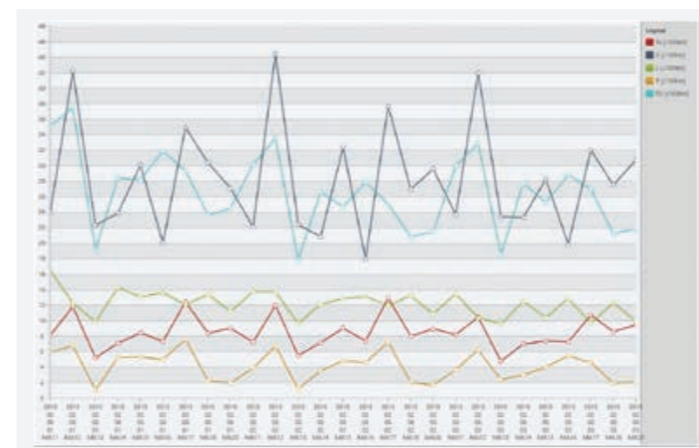
Every winding room parameter is covered while multiple users can work concurrently – management, quality, production, maintenance – benefiting from improved communication between departments and fast decision-making based on reliable data. Even remote control of the central clearer unit is available via Uster Quantum Expert.



#### Simplified data handling

Central article management optimizes clearing limits across all production places and not only one machine. This gives a clear overview of all article settings for each article and allows the Quality Manager to ensure clearing limits comply with the mill's specific standards.

Automated data handling improves the information flow. Pre-defined reports ensure fast and efficient access to key data for the lowest effort and cost.



#### Insightful analytics

Detailed analysis of winding data is made simple, helping spinners pinpoint any issue with production or raw material.

Additionally, the system builds the link to Uster Quality Expert and the total mill view, with alerting and traceability of exceptions. The combination of data from the yarn clearers with all processes makes it possible, and even allows a prediction of yarn performance in weaving.



Ring Spinning Optimization



Total Contamination Control



Yarn Prognosis



Alarm Center



Mill Analysis



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

## Prevention with the connected yarn clearer

Troubleshooting with expensive clearer cuts is outdated, thanks to preventive yarn clearing. The intelligent connections open up enhanced optimization potential for spinning mills.

- Total Contamination Control
- Ring Spinning Optimization
- Uster RSO 3D for quality mapping and prevention at source



### Total Contamination Control

Uster is the only single-source provider of this integrated solution. The combined technology of Uster Jossi Vision Shield and Uster Quantum 4.0 precisely controls contamination levels in yarns, with minimum waste.

- Targeted blowroom alerts for early reaction
- Balanced efficiency and quality
- Preventive actions with direct impact on profitability

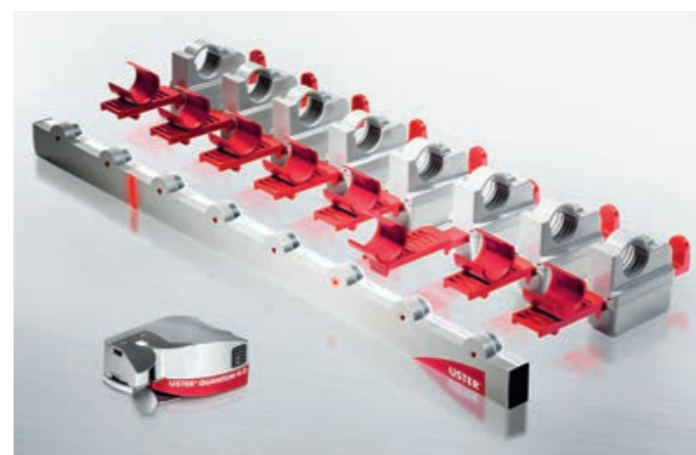


### Ring Spinning Optimization

Maximize ring spinning productivity by focusing on the costliest stage in yarn manufacturing.

Spinning mills can set correct machine settings for higher production yields and maintain quality at the required levels by intelligent correlations.

- In-line assistance with related alerting
- Comprehensive speed curve analysis
- Optimization with cross-process analysis



### 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.

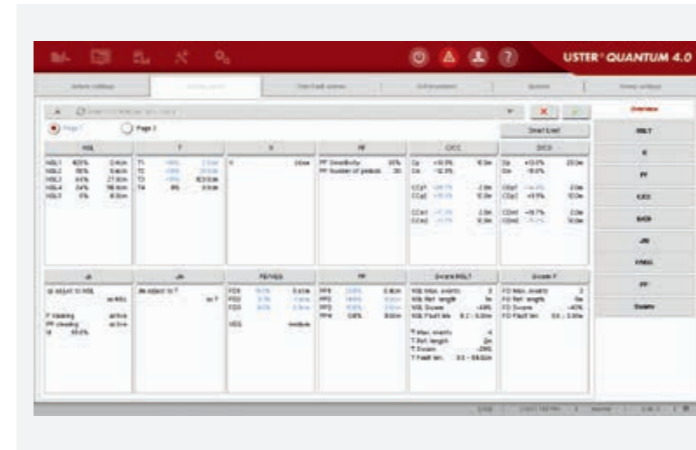
The intelligent combination of Uster Sentinel, Uster Quantum 4.0, and a linked winding machine with a spindle identification system reveals a unique preventive system in quality control for textile mills.



## Tried and trusted Smart Clearing in changing times

Uster Quantum 4.0 progresses to the next level of Smart Clearing Technology and supports spinners in changing times when there is a lack of experienced personnel. Everything is designed and implemented by specialists with years of industry know-how and experience. The perfect yarn clearer solution for mills striving for constant quality and high performance.

- Easy-to-use Smart Duo technology
- Optimum user experience with new Central Clearing Unit
- Reliable measuring heads designed for the future



### Easy to use

With the new central smart limit button, applying limits for new products has never been easier. Initial settings are input at a single click and can be fine-tuned as required.

User-friendly operation is the essence of Smart Duo clearing. The Uster solution simply works and can be set intuitively.



### Optimum user experience

The Uster Quantum 4.0 has a significantly impressive central clearing unit – the seventh generation – controlled via a state-of-the-art 16:9 touchscreen.

- Improved operation in widescreen with capacitive touch
- New CPU for faster reaction
- Processors with higher computing power, enabling new ways of clearing



### Reliable and designed for the future

Measuring heads were built on the excellent basis of previous Quantum generations proven to be reliable. The new design and components stand up to the most demanding mill environments and provide a long service life through:

- A new capacitive reset button
- Improved housing with better sealing
- New eyelets that further stabilize the yarn path

## Product configuration

Well accepted standards of YARN BODY™, Dense area and Smart limits are now enhanced by the new Smart Duo technology, providing maximum flexibility, security and prevention for today's market challenges in spinning mills.

Basic	Smart Duo		
■	■	Uster Quantum Expert	new
■	■	RSO 3D	
	■	Blend mix up	new
	■	Core yarn	with new continuous measurement
	■	Shade variation	
	■	Polypropylene	with new classification
	■	Vegetable matter	
	■	Swarm FD, FL	new
	■	Foreign matter	with new advanced classification
	■	Hairiness	
	■	Density	new
	■	Cross clearing	new
	■	All-in-one capacitive & optical	new
■	■	Splice Clearing	
■	■	Imperfections	
■	■	Unevenness	
■	■	Periodic faults	
■	■	Swarm NSL, T	new
■	■	Count Variation	
■	■	Thick & thin places	

■ Standard ■ Option ■ Data management system



### 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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