Non-stop innovation in quality management

USTER® QUANTUM 3 yarn clearer celebrates 10th anniversary

Ten years ago, it seemed like a ground-breaking innovation in yarn clearing technology. But that was only the start, and USTER's ambitions for its world-leading QUANTUM 3 series have never stopped growing. Spinners have been presented with a whole series of impressive developments – each one a big step in expanding the possibilities, from quality control at winding to 'smart' clearing, contamination control, mill optimization and even preventing faults from occurring at source.

"USTER® QUANTUM 3 featuring Smart Clearing Technology" was the headline in 2010 when USTER launched its third generation of yarn clearers. "It was an exciting time for me, introducing the first yarn clearer with automatic clearing limit proposals based on the Yarn Body concept," says Sivakumar Narayanan, at that time the USTER product manager for yarn clearing.

Powerful processing electronics made it possible for the system to display the full yarn body – an outline of the 'normal' yarn with its expected and tolerable natural variations. Since then, the term Yarn Body has become a well-recognized and easily understood descriptor in the industry.

Today, spinning professionals readily envisage the familiar green arrowhead symbol within a varying dark green frame as an essential element of the classification matrix.

USTER know-how – it proposes suitable clearing limits to achieve the required quality level. That means the same reliable quality level is achieved with contamination control for vegetable matter or polypropylene. Each issue is solved with a dependable clearing solution – even for severe problems such as periodic faults.

Once these highly sophisticated 'basics' were in place, USTER® QUANTUM 3 development focused on challenges with trend-related quality control, int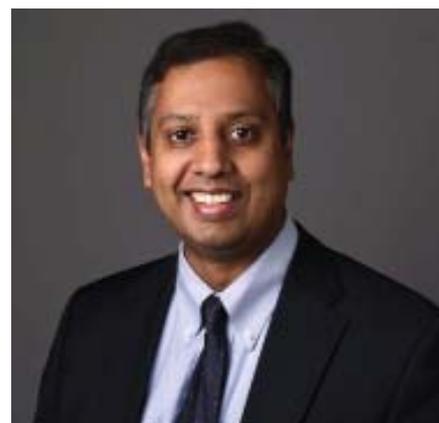roducing two unique features in 2015. Irregularities in shade could now be detected and cleared in mélange and colored yarns, for better fabric quality. And the Core Yarn Clearing feature effectively eliminated the risk of fabric rejects through defective sections of these yarns – where the inner elastane component was either missing or off-center.

A 'grown-up' partner

As grown-up technology, USTER® QUANTUM 3 was ready to play a major part in all-round production optimizing. Yarn clearer data enables quality and cost to be balanced for best-possible profitability – and this is combined with data from USTER® JOSSI VISION SHIELD to achieve Total Contamination Control, with precisely-controlled contamination levels. "Our customers value the integrated solution to manage remaining contaminants in yarns at minimum possible cost," says Sivakumar Narayanan – in the meantime also himself 'grown-up' into the position of Executive Vice-President for Marketing and Business Development at USTER.

Extending the partnering of systems still further, the yarn clearers connect with data from USTER® SENTINEL to create the Ring Spinning Optimization Value Module. This offers optimization potential at the most costly stage in yarn manufacturing. For the first time, mills can intelligently correlate ring quality data and winding quality data in a single system. Smart alerts report deviations in ring spinning machines or changes in essential conditions such as relative humidity and temperature.

Sivakumar Narayanan, Executive Vice-President for Marketing and Business Development at USTER.

Smart, smarter…preventive

Still not satisfied, USTER product developers wanted to transform 'smart' yarn clearing into 'preventive' yarn clearing. The combination of USTER® QUANTUM 3 and USTER® SENTINEL creates a quality security tool, which stops off-standard quality yarn being produced at source, when the ring spinning optimization system is equipped with the Roving Stop feature. USTER® ROVING STOP effectively becomes a function of the ring spinning machine, just as the yarn clearer does in winding.

The appropriately-named USTER® RSO 3D adds a further third dimension – by providing individual cop quality data for each spindle position. Quality mapping along the ring spinning frame maximizes the optimization potential, while preventive measurements are in place at spinning and winding. Waste of raw material and costly clearer cuts can both be managed preventively and automatically, thanks to a bi-directional exchange and analysis of data between USTER® QUANTUM 3 and USTER® SENTINEL. This benefit is enabled using USTER® QUANTUM EXPERT and Muratec QPRO EX/FPRO EX with Spin Inspector. Thus, the USTER® RSO 3D system achieves the ultimate goals of process optimization and traceability.

An impressive history over its first decade, but even more can be expected from the USTER® yarn clearer and 'friends' in future…◆

USTER QUANTUM 3 - the preventive yarn clearing system.

Continuous development

This year, it's worth celebrating the 10th anniversary of USTER® QUANTUM 3 – but not only as the ground-breaking third generation of a best-selling clearer system. What's even more notable is its continuous further development during the past decade. Trailblazing progress in quality assurance technology now allows textile manufacturers to optimize production efficiency and reduce costs continuously, taking advantage of several beneficial extras with USTER® QUANTUM 3. The development of Smart Clearing Technology, for example has been a massive leap, providing an indispensable tool for quality-oriented spinning plants.

The new yarn clearer was a game-changer in many ways: it 'learns' everything needed about the running yarn in just two minutes, then – using built-in