SAURER.

Spandex control.

Fibrevision Fibre TQS

Fibrevision FibreTQS is a unique on-line monitoring system for the spandex/elastomer process providing the users with clear operational and downstream benefits, both enhancing reputation and reducing costs.

FibreTQS sensors
The FibreTQS system comprises several components:

Sensors
Optical sensors measure the profile variation of the yarn allowing identification of:
- Denier/twist variation, a very sensitive measurement of the short term variation in the profile of the yarn associated with: air faults, general process instability, weld spots and slubs
- Denier change, identifies filament crossovers
- Broken filaments identifies broken filament and slub problems

Electronics
The sensors connect to distributed electronics and carry out all high-speed data acquisition and signal processing as well as providing a range of I/O functions

PC software
A simple intuitive user interface with a mimic display of the machine provides the current status of the machine at a glance. Details of this are shown under user interface below.

Plant integration
Provides facilities for data export and control of multiple FibreTQS machines from a single PC.

FibreTQS grading and reporting
FibreTQS continuously monitors data from the sensors and identifies all quality events. Based on these faults the packages are graded based on the limits and grading criteria defined in the merge set-points and appropriate actions taken e.g.: output activated to cut the end or illuminate a warning lamp. The key grading limits available in the merge setpoints are:

Mean variation
The minimum, maximum and CV values are checked against mean data.

Transient faults
Minimum and maximum limits are checked against each individual reading and in the case of a fault, a graph of the event is captured.
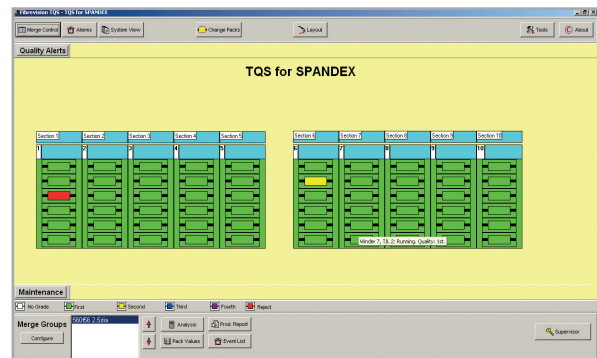
Slubs and broken filaments

Grading is based on the number of slub events, and/or the total number of broken filaments per package. On the basis of the faults identified, FibreTQS automatically assigns a quality grade to the packages (grade 1, 2, 3, 4 or reject). This quality grade is displayed at the machine PC and can be transmitted automatically to any automatic handling/packing system immediately when the package is doffed.
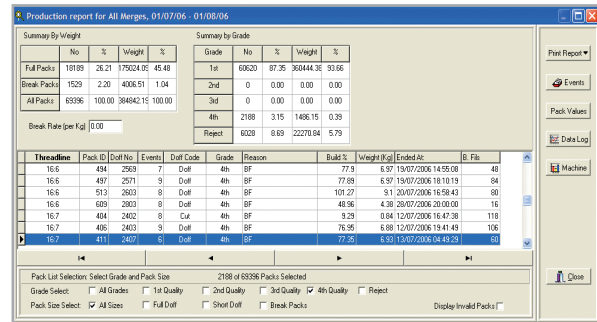
Flexible reporting

A range of reports are available to summarise package quality and off quality events; by machine, merge group, winder, or threadline over flexible time periods. Full shift reporting facilities are included. These reports summarise the number and weight of packages in each grade and allow lists of packages in selected grades to be printed.
When viewing these reports on screen it is possible to view/print details of:

- Off quality events for any selected package
- Package summary data for each property
- Trend data for each property for the duration of the package

FibreTQS user interface

FibreTQS provides a graphical display of the machine layout that indicates both threadline running status and quality grade by the colour of the package icons.
Clicking on a winder icon displays details of the current readings and clicking on individual threadlines provides:
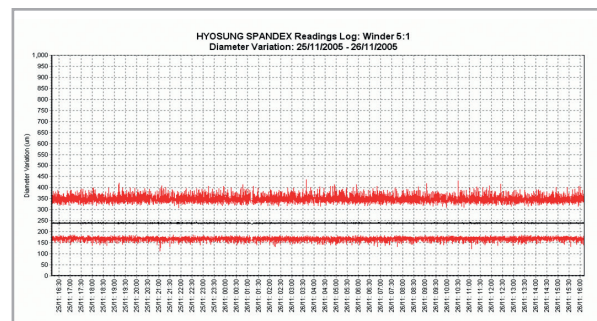
- Current readings
- Summary data for the package to date
- Details of off quality events
- Real time view graph
- Analysis tools to aid troubleshooting
- Quality reports from previous packages
- Access to historical trend data

User Interface
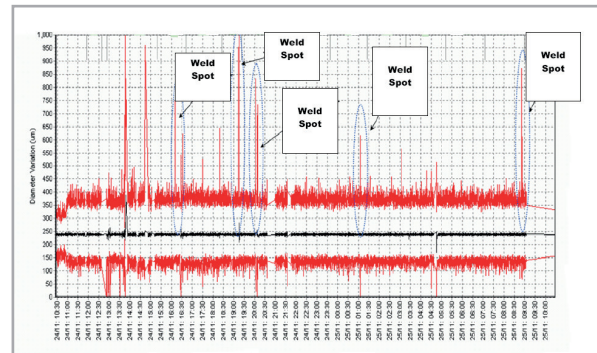
FibreTQS – typical spandex data

Typical denier variation data from stable and unstable threadline is shown in the trend data graphs below. The black line represents the mean data values whilst the red lines represent the minimum and maximum values (charts 1 & 2).

Unstable process data

Stable process data