Achieving Better Quality and More Production from Existing Extrusion Lines

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How can fiber producers squeeze more production and improve synthetic yarn quality on existing extrusion lines? One of the best ways is to replace existing temperature transmitters on the draw rolls. This inexpensive upgrade can reap huge benefits in product quality, product uniformity, production volumes and maintenance savings.

Typical installation of the TempTrak® RT300 Series Transmitter

PRODUCT QUALITY

Aging temperature control systems lack the precision needed to maintain the roll shell temperature at a constant, precise set-point temperature. The most likely cause is inaccurate temperature data communicated via obsolete temperature transmitters. Consider that these transmitters operate in the harsh, hot environment behind the roll motors, often in spin-finish saturated air filled with dirt and dust. Electronics age quickly under this type of use and can become unstable, drifting, and even intermittent. While old temperature transmitters may continue to run, they compromise the entire temperature control loop when out of calibration.

PRODUCT UNIFORMITY

When temperature measurement is erroneously transmitted on just one godet of a spinning line, it affects the final product uniformity. In some cases, an off-temperature yarn end can create streaking, such as an off-color line running through a solid color in a carpet. Off-temperature yarn can be hard to detect early in the process. The resulting non-uniformity may render the final product unsalable after significant work has gone into its production.

PRODUCTION VOLUME

Obviously, when a flaw is discovered in a yarn end, the production process is impacted. If discovered quickly, the loss is minimized. Unfortunately, that is not usually the case. More often, it is an ongoing frustration to the production engineer because old temperature transmitters can wander out of calibration intermittently, producing varying grades of yarn. Scrap product is the result. Additional loss of production occurs when lines are interrupted to investigate and repair suspected problem causes.

MAINTENANCE COST

Running a fiber process with outdated temperature control electronics comes at the cost of higher maintenance. At what point is it more cost effective to replace the electronics rather than feed money to the maintenance cost? The numbers can be hard to nail down, making capital expenditures challenging to justify on paper. How much time and cost is involved in each maintenance event? How much scrap or lost production is there before the problem is discovered, explored and repaired? How long does the repair last? Real savings can only be seen when the instrumentation upgrade is completed.

LOW COST SOLUTIONS

It is amazing how roll temperature-related problems clear up once improved transmitters are installed. For a fraction of the cost of buying new machines, transmitter upgrades refurbish existing lines to like-new performance. TempTrak® Rotary Temperature Transmitters from Binsfeld Engineering come in configurations to fit most roll motors. Simple drop-in designs allow for quick and easy upgrades. Improved performance has been documented by companies around the globe. Binsfeld has been the choice of major fiber producers including Shaw, Invista, Mohawk and Beaulieu for many years.

SUPERIOR TECHNOLOGY

What makes Binsfeld such a popular solution? Their RT300 series, with five-year warranty, is the workhorse of a rich product offering. Available in one to four zones, it can be configured to fit most roll motor designs. Other offerings include: the RT350, designed for single channel Dienes transmitter replacements; the RT360, designed for dual channel Rieter transmitters; and the soon to be released RT400 for Neumag six-zone rolls.

Digital precision eliminates the drift and wander typical of older

RT362 Transmitter System for Rieter machines

RT304 Transmitter System for 4-zone temperature control

designs. Binsfeld reads the sensor and immediately converts it to a digital signal for rotating-to-stationary communication and further processing, eliminating opportunities for signal corruption. High temperature, high tolerance parts provide circuit robustness for the harsh environment where the transmitters must run. The result is a robust, accurate transmitter that will run consistently for years.

The focus at Binsfeld is on fiber applications as part of the company emphasis on accurate sensor transmission from rotating sources. For example, while other designs utilize close coupling of power coils (1-2mm) and rely on optical links for communicating data, Binsfeld uses tuned resonant inductive coupling technology that allow spacing of up to 9mm. They communicate the sensor signal via this coupling, eliminating problematic optical paths that can be compromised by dirt and spin finish.

Today, Binsfeld is active worldwide with agents in Europe, India, China and Turkey as the price of their products continues to be affordable due to the weak U.S. Dollar.

It is safe to say that Binsfeld transmitters will add many years of productive life to existing machinery while the investment cost is minor and the payback is significant.

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