Case Study:

New Line Unable to Run at Capacity

Non-woven manufacturing facility line not able to achieve full line speed.

Objective

- Diagnose system faults when attempting to operate at full capacity.

Solutions

- Performed a systematic evaluation of the new equipment.
- Verified clean installation, properly terminated motor leads, proper cable use, cabinet design, and Fieldbus installation.
- Corrected encoder and reconfigured the system.
- Verified machine operations at full speed.

Results/Benefits

- The customer's machine was able to operate at full speed.
- Acceptance testing was completed and validated to the end client's satisfaction.

Background

The Quad Plus troubleshooting team was called out to a non-woven manufacturing facility to diagnose a problem with their system. The line was brand new and still in the acceptance testing phase for the machine.

The customer was experiencing problems with the VFDs in a three-roll calender system that were configured to run in a speed matching operation at speeds up to 1000 feet per minute. However, this machine presented consistent system faults at approximately 800 feet per minute or faster, and intermittent faults on the calender at lower operating speeds.

Quad Plus Solution

Because the system was new, the Quad Plus team began the troubleshooting with a systematic evaluation of the entire system, installation, and programming. We verified that the installation was clean, the motor leads were properly terminated and using the correct motor cables, the cabinet was well-designed, and the Fieldbus (Profibus network) was installed correctly and working well.

When the encoder feedback was evaluated with instrumentation, the presence of switching noise in the encoder signal was observed. We also discovered that the encoder was wired for unipolar operation, which is not wired in the best method for heavy industrial installations. We rewired the encoders and reconfigured the entire system.

The customer was then able to operate the line at 1000 feet per minute without any further issues.

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