

High-Speed Production

Technical Bulletin

High-speed equipment occasionally produces bad product or crashes. Web breaks, labeling feed or position errors, misapplied hot melt, material jams, slitter errors and a host of other high-speed mechanical issues can cause material waste, lengthy downtime, loss of product quality and other problems that impact the bottom line.

Problem

Machinery and most mechanical motion move too fast for the engineer or maintenance technician to see. The typical response is to reduce the machine run speed to slow down the event to "see" what is going wrong. This changes the dynamics of the mechanical event (timing, bounce, vibration, oscillation, material interaction, etc.) and the problem goes away. Go back to normal run speed and the problem returns.



Solution

Electronic memory recording technology and flexible trigger techniques make modern high-speed digital video cameras ideal for recording intermittent events such as web breaks, jams and material feeding errors. Use high-speed imaging to record the fast mechanical problems for instant slow-motion playback, allowing the engineer or technician to see, measure and analyze the problem, and then fix it!

With the high-speed camera in record mode, a trigger signal is generated by the machine failure,

either through an electrical signal, or through the camera system's video logic. Images of the event are ready for immediate playback and analysis, providing vital slow-motion feedback about what went wrong. For applications where the machine is not stopped, much longer recordings may be made by streaming images directly to large SSDs. When you can see what caused the problem, you know what has to be done to fix it.

This is only one example of how high-speed imaging can lower manufacturing costs and increase profitability by helping to reduce line downtime and changeover time, reduce waste, improve yield and improve product quality.