

# FASTEC IMAGING™

## Technical Bulletin

### Pharmaceutical Industry

Pharmaceutical companies are pushing high-speed manufacturing and packaging processes in an effort to maximize manufacturing output. Equipment is often pushed to or past designed operational speeds in an effort to meet production goals.

A typical manufacturer in the pharmaceutical industry must address the following questions:

- Does the manufacturing of gel capsules, tablets and pills run without defects or excessive material waste? Are manufacturing machines achieving production goals (desired run rate, minimum down time)? Are line changes fast and efficient?
- Do all the secondary production processes (packing, bottling, labeling, printing date & lot code) run without manufacturing problems? Are manufacturing goals being met?

#### Problem

Manufacturing engineers and line operators are often faced with high-speed manufacturing lines that are down or producing faulty products, often to great expense to their company. In order to see what the problem is, the operator typically slows the high-speed line down to observe manufacturing processes that are too fast for the eye to see. This changes the mechanical phenomenon (bounce, vibration, alignment, dwell time, material variability induced by velocity changes, etc) and the problem goes away. When the line is returned to the normal high-speed run rate, the problems return. Engineers and operators can spend a lot of time and money trying to solve the unseen problems.



#### Solution

High-speed digital camera systems provide an easy, inexpensive way to observe high-speed mechanical processes under real production situations. The high-speed images (record rates up to 1,000 frames per second) can be instantly played back on a frame-by-frame basis to see, measure, and understand the fast mechanical motions that are causing the manufacturing problems. The camera can be positioned to record the manufacturing process of interest. An operator can periodically play back sequences of the process and take action before a problem occurs (preventive maintenance).

#### Capture Random Events

With the high-speed camera in record mode, a trigger signal generated by the machine failure or error automatically stops the recording process. Images of the event are ready for immediate playback and analysis, providing vital slow-motion feedback about what went wrong. When you can see what caused the problem, you know what has to be done to fix it the problem.

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.