

LARGE PHARMACEUTICAL MANUFACTURING CASE STUDY

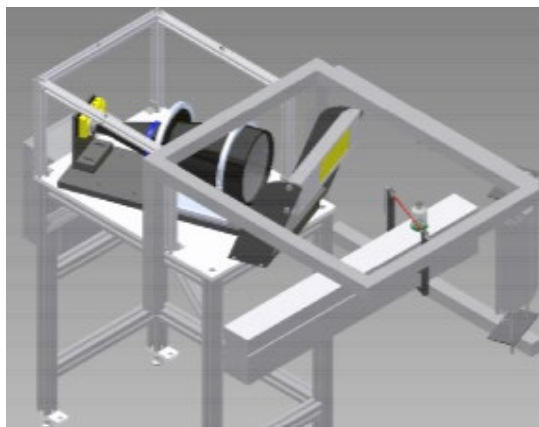
CHALLENGE #1

An engineer at a local, Indianapolis, Indiana pharmaceutical company, was tasked with improving a Vial Packaging Line vision system (for a drug used to treat certain types of lung cancer patients). The vision system verifies packaging component placement and color. Due to low-contrast, high noise and variable working distance, the existing vision system was not capable of reliably measuring packaging component placement with sufficient accuracy. This insufficient system accuracy resulted in an unacceptably high level of false rejects. The engineer realized that a robust, reliable and high-performance lighting and optics solution (a stronger front lighting, addition of a backlight and installation of a telecentric lens) would be required to resolve these issues.

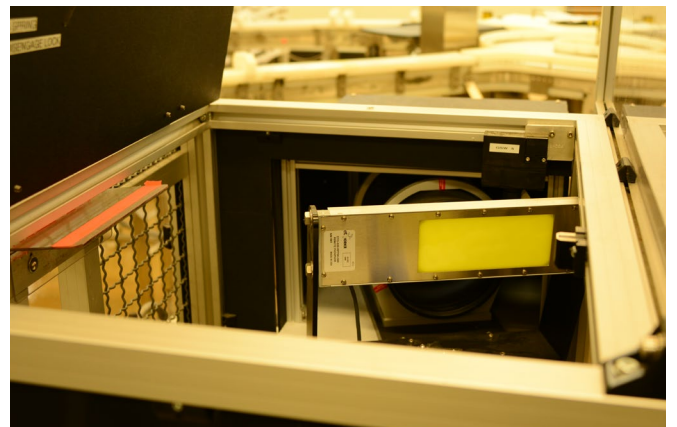
SOLUTION #1

The engineer met the owner of Horner Lighting, Phil Horner, at a local tradeshow, where he was introduced to Horner's Remote Phosphor Lighting, which is exponentially brighter than the traditional industrial lighting. They worked together with Horner engineers to create a customized circuit that would strobe the high intensity lights. After installing the Horner lights and telecentric lens, false rejects dropped dramatically saving the company an estimated \$256,000 annually. With the success of the initial Horner Remote Phosphor lighting solution, the company has proceeded to install Horner lighting on multiple device assembly and packaging lines.

ENGINEERING PROPOSAL



AFTER INSTALLATION



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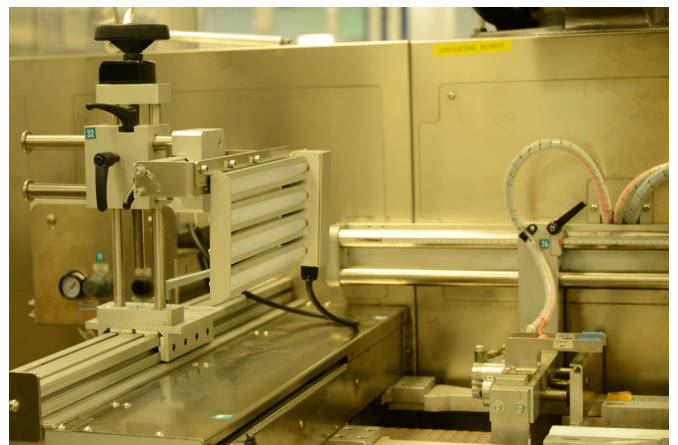
CHALLENGE #2

A few years later, this same engineer was once again tasked with correcting a particularly challenging vision system issue. A Dry Product Bottle Packaging Line vision system, (for an antidepressant medication) designed to read 48 data matrix codes on the bottom of bottles using a 29-megapixel camera was being installed on a case packer. The bottles used for packaging these particular capsules were brown, and the data matrix code was black resulting in very little contrast between the bottle and the code. The failure rate of the initial installation was nearly 50%. The engineer knew that this issue would not be solved by using remote phosphor technology and he approached Horner Lighting for a custom engineered solution.

SOLUTION #2

Horner Lighting engineers began working to design a customized lighting system. After some trials and testing, the company purchased two Horner 660 nm Deep Red 12" x 4 Lighting Modules with strobe capabilities. The matrix codes are printed in black on brown bottles. Without the deep red 660 nm lighting to improve contrast, the camera was not able to detect the code. The Horner lights provided a 25% greater contrast for the camera to read all 48 data matrix codes on the bottle bottoms [both brown and white bottles]. With the strobe, the Horner 660 nm Deep Red Light is pulsed at 0.0002 seconds. The 660nm Deep Red lighting and quick strobe proved to be the solution that the company needed to get accurate images on a consistent basis. Their Failure Rate went from 50% to 0%. Below is an example of the difference in the bottle illumination with the 0.0002 second pulse:

BEFORE AFTER AFTER INSTALLATION



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CHALLENGE #3

In a third packaging opportunity, in preparation for a new product launch for tablets (prescription medicine used to treat breast cancer), it became necessary to install a vision system on a Dry Product Blister Packaging Line that would verify placement of tablets within a blister pack.

SOLUTION #3

Two 100-Watt Horner Remote Phosphor Lights with strobe were installed for a color camera to verify tablet position within the blister package. The engineer noted, "Because we had such great confidence in the Horner Remote Phosphor lights that we had installed on our Line 13 Vial Packaging Line, we chose Horner lights for the blister pack application. The intensity and the consistent CRI from one trigger to the next is just outstanding. The Horner Remote Phosphor lights...they last forever. It's important for our vision systems to be robust, Horner lights help us to be robust."

The collaboration has saved this pharmaceutical company over \$500,000 from 2012 to 2017 and has created a strong partnership between two locally owned businesses. Phil Horner is proud of Horner Lighting's partnership with this company, and the various lighting systems that are used to help inspect life-saving medications. Today, when they have any type of lighting dilemma this engineer turns to the Horner Lighting Group to get customized lighting technology. "Not only have we had flawless performance from the Horner Lighting products, but the design capability and service has been outstanding."

BLISTER PACKAGING LINE

