

Eyebot Application

Inspecting Hard Disk Media

Customer Problem

A leading manufacturer of hard disk media needed to find a system to count the media in production cassette trays. The system needed to detect the presence of missing, cross-slotted, and/or double disks in the media cassette trays.

The manufacturer had been using an ineffective machine vision software solution to solve their inspection problem. They were dissatisfied with the accuracy levels due to the system's inability to effectively detect double disks, even after deployment of costly high-resolution cameras and lenses.

Furthermore, the manufacturer found that most inspection solutions available were too costly and difficult to integrate with their production lines.



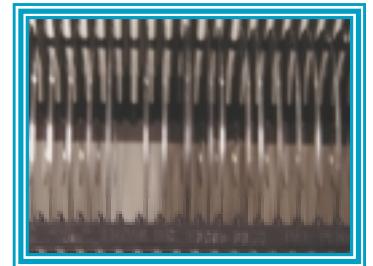
SIGHTech Solution

SIGHTech provided the manufacturer with an extremely accurate and affordable solution: HD Eyebot Advanced. The total HD Eyebot Advanced System, which included a camera, lens, display monitor, and backlight.



The inspection system was easily integrated with the manufacturer's existing conveyor system. HD Eyebot Advanced offered the manufacturer the ability to process 95 mm, 84 mm, and 65 mm disk sizes continuously in a mixed run.

HD Eyebot inspects each disk slot individually as the cassette passes through the view of the camera. Therefore, normal resolution cameras are adequate.



The camera angle was a critical element of the integration process. The HD Eyebot viewed the silhouette of the ribs of the cassettes with backlighting exactly between two drive wheels.

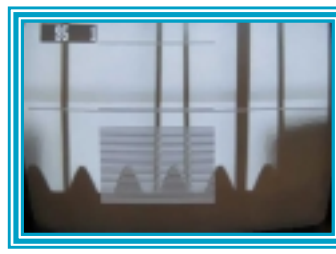
The vertical height of the camera above the cassette and distance horizontally away from the cassette were carefully adjusted. The camera was placed 36 inches above the center of the rollers of the track. A plumb line was dropped from the camera to verify that it was 9 and 1/2 inches away from the center of the disks.

Stocker and Yale high frequency fluorescent backlighting was placed under the conveyor to simplify the video image and reduce the effects of stray reflections from the metal and/or glass media.

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HD Eyebot Advanced inspected the disks in the cartridge trays and then delivered an output (below) indicating one missing disk and one double disk.



“Our sputters downtime has been reduced as much as 60% due to the integration of the HD Eyebot Advanced,” said Eric Hwang, a spokesperson for the manufacturer.

The HD Eyebot Advanced provided the manufacturer with a turnkey machine vision system that was able to count the hard disk media in production cassette trays and detect disk placement errors within the trays.

HD Eyebot allowed the manufacturer to adjust the inspections trigger points, which determine how aggressive the HD Eyebot would be during the inspection process. While in the OPTIONS mode, the manufacturer adjusted the trigger point settings for Right Cross, Left Cross, and Double Disks.

With proper installation, manufacturers can expect 100% identification of bad cassettes with false positives under 1%.

With the backlight and camera set up, the operator turned the HD Eyebot’s knob to RUN. Once the cassette tray passed through the HD Eyebot’s field of view, its on-screen status indicator displayed the (1) total number of disks possible in the cassette tray, (2) if any missing, cross-slotted and/or double disks were detected, and (3) which slot the error(s) occurred in.

SIGHTech Vision Systems, Inc. is the world’s leading manufacturer of self-learning machine vision systems.

SIGHTech’s HD Eyebot is a revolutionary turnkey machine vision system designed to count hard disk media in production cassette trays. In addition, HD Eyebot determines if there are any missing, cross-slotted, or double disks in the cartridge.

HD Eyebot requires no PC, no frame-grabber, and no software.

HD Eyebot is available in two versions, Basic and Advanced.

The Basic version delivers a GOOD/BAD signal whenever it detects anything is wrong. HD Eyebot Basic is available for \$7,995 and comes with a camera, lens, display monitor and backlighting.

HD Eyebot Advanced delivers sophisticated features for the users who need to know what type of error occurred and where the error was located within the tray. It is also for users that process different sized cassette cartridges through one production line. HD Eyebot Advanced detects the presence of a missing, cross-slotted and/or double disks and notes where the error occurred in the tray. HD Eyebot can inspect 95 mm, 84 mm, and 65 mm disk sizes in a mixed production run. HD Eyebot Advanced is available for \$18,995 complete.