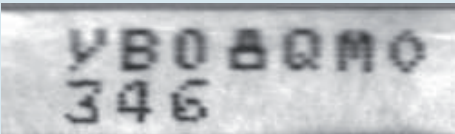


OCR on Caps of Pharmaceutical Bottles

360° recognition of the batch number on the outside surface of caps

The task

Pharmaceutical bottles are marked with an alphanumeric string of characters on the outside surface of their caps. These ink-jetted characters need to be verified in the production line at a throughput of 5 bottles per second while the product is moving with an unknown rotation. VICODE uses a special sensor that is located above the bottles and projects the entire outside surface of the cap into one image. The OCR system VICODE reads the characters independent of the bottles' rotation.



Adjusted characters

The seven-digit type information of the first line as well as the three-digit numerical code in the lower line are read simultaneously.

Benefit

VICODE is used to avoid mixing different batches in the autoclave chamber and for later labeling. The ink-jet printer marks the bottles right after they have been filled. Labels are applied to the bottles after leaving the autoclave chamber. Reading the marked caps ensures that the right label gets applied. The 360° vision sensor can be easily integrated into

the existing production line. Due to its design, it does not require a complicated bottle handling process of any kind. This minimizes cost and space requirements.

Implementation

The caps are inspected in motion at a speed of 18 meters/minute (59 ft/min). This equals a throughput of 5 bottles per second. The custom 360° vision lens with integrated LED flash creates a homogeneously illuminated image of the entire outside area of a cap. An automatically generated batch protocol can be accessed online anytime through the integrated VICODE web interface. VITRONIC machine vision systems are qualified in accordance with GAMP4.

Technical data	
Cameras:	1 matrix camera
Illumination:	Custom LED flash, integrated into the sensor
Speed/ Throughput:	5 bottles / sec 18 meters / minute (59 ft/min)
Resolution:	0.1 mm
Hardware/	1 Industrial PC
Interfaces:	I/O-Interface