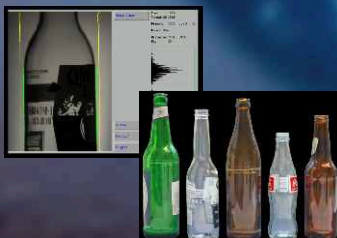


BBULL[®] TECHNOLOGY

STRATEC IMAGE

Quality Management
with Multifunctional
Image Processing



BBULL
INFORMATIK & INDUSTRIE
ELEKTRONIK

CENTRO
KONTROLLSYSTEME

STRATEC
CONTROL-SYSTEMS

SYMPLEX
VISION SYSTEMS

General Introduction

STRATEC IMAGE is a flexible all-purpose image-processing system for integrated quality assurance in any automated production line.

The system consists of a central operation and processing unit **STRATEC 4000** and, depending on the application, at least one inspection bridge for installation on the conveyor or in the machine.

Because of the modular design, **STRATEC IMAGE** can be easily adapted and extended to many requirements. Even for individual solutions technique and cost efforts are always in a reasonable balance.

Mechanical Configuration

Depending on the application different mechanical constructions of the camera / illumination units will be projected. This ensures always ideal conditions for the



inspection of the specified criteria on the product.

Basically the optical inspection bridge includes one or, application-dependently, several high-resolution Fire-Wire cameras with low-wearing LED-illumination units, installed in a high-quality waterproof stainless steel housing.

For the acquisition of the object in the inspection area and the following sub-



sequent tracking to a re-jection system, only two external signals will be necessary. Also in this respect, just a few improvements can be done in advance, e.g. if for installation inside a labeler, the available signals of the labeler can be used. This reduces the composition of redundant signal sources which results in an optimal use of present resources.

The operation of these signals and the precise release of the control signals for camera and flash-illumination is done in an independent working real-time processing module, which is in permanent communication with the image processing system.

Operation and visualization of **STRATEC IMAGE** is done in one central operation unit with 15" graphic touch display.



Software

STRATEC IMAGE takes one image of every single test object. The image will be processed and inspected in the processing board by windows-based inspection software. A continuously growing multiplicity of different processing-algorithms, result in an almost hundred-percent precision of the inspection.

With the completely computer-based operation of the high-resolution digital images no contact to the object is applicable. This ensures, along with the high speed, also a changeover-handling as easy as possible. After adjustment of the inspection functions the complete configuration of the applied inspection tools, including the camera set-up, camera adjustment and further parameter can be memorized in a type-related configuration file. Thus, after a first set-up phase a fast manual changeover is possible.

The number of the stored assortment is only limited by the hard-disc memory.

The service-mode allows a verification and adaptation of the exact inspection function and the collaboration of the inspection tools.

All menu-structures are clearly arranged and designed for intuitive operation, which allows a fast arrangement and recall of the required data.



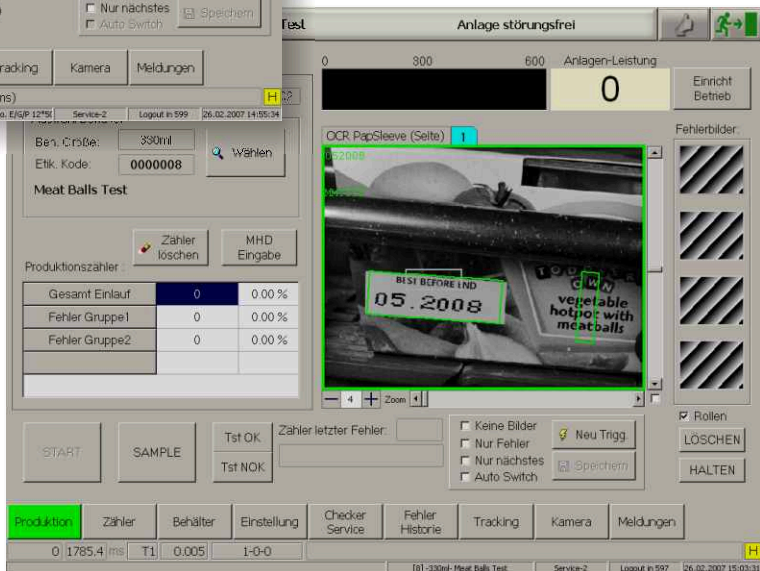
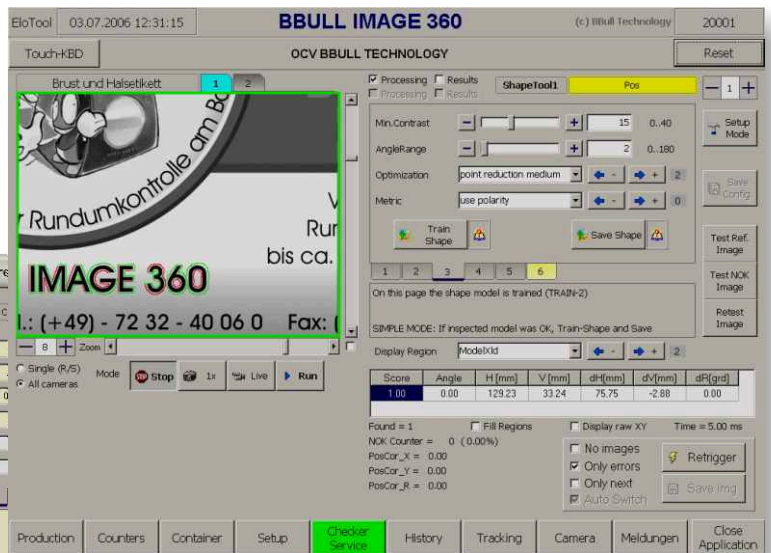
For the definition of the inspection features the software presents a number of different inspection tools, like the measurement of absolute and relative positions of the features, text, logo or barcode inspections as well as grey-value analyses.

Features

- modular design of the hard- and software components, always extendable
- single or multi-camera system
- high system stability by application of Windows XP embedded
- high line performance (up to 70.000 objects / h)
- high resolution digital fire-wire cameras with motor-driven adjustable optic
- low-wearing LED illumination
- project specific construction of inspection bridge / lightning module
- pre-adjustment of project specific inspection software at BBULL according to tested samples
- interface for remote access and maintenance via network / internet

Applications

- label inspection (presence, position, color, print, overlapping)
- text reading (OCR / OCV)
- barcode reading
- fill level inspection under- and overfill with analogue analysis
- cap quality inspection (presence, position, color, logo, safety-ring, swing-top)
- full case inspection
- empty case inspection
- leakage inspection via detection of inclusions and calcinations



Label Inspection

- horizontal and vertical displacement
- tilted labels
- "Dog Ears"
- inverted and turned labels
- labels
- double labels



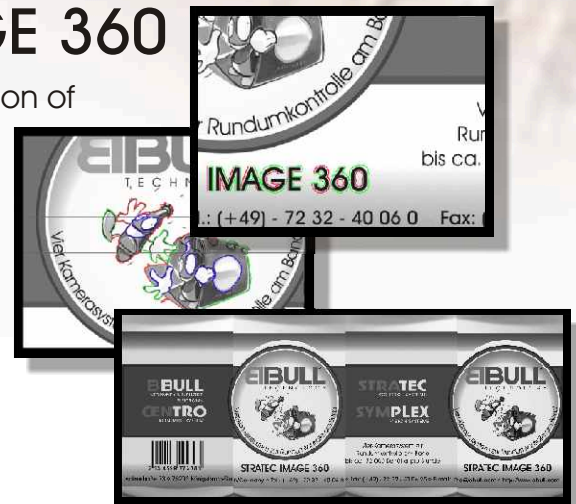
Layout Inspection

- print inspection (text, language, damages)
- color



STRATEC IMAGE 360

- total pre-delivery inspection of the produced container



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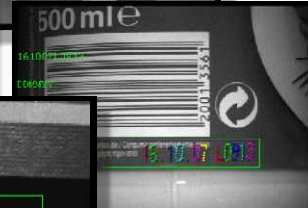
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OCR Text Reading

- completeness
- readability
- correctness



Barcode Inspection

- EAN, UPC, pharma-code, 2D-Barcode (Data Matrix)



Fill Level Inspection

- under- and overfill inspection
- analogue fill level recognition
- filling valve monitoring
- foam inspection



Cap Inspection

- presence
- position (too high, too deep, tilted position)
- over-torqued
- Leakage inspection
- safety ring inspection (missing, broken)
- color inspection
- logo inspection
- swing-top inspection



Bottle Sorting

- shape, height, diameter
- cap type
- color
- label (ACL)



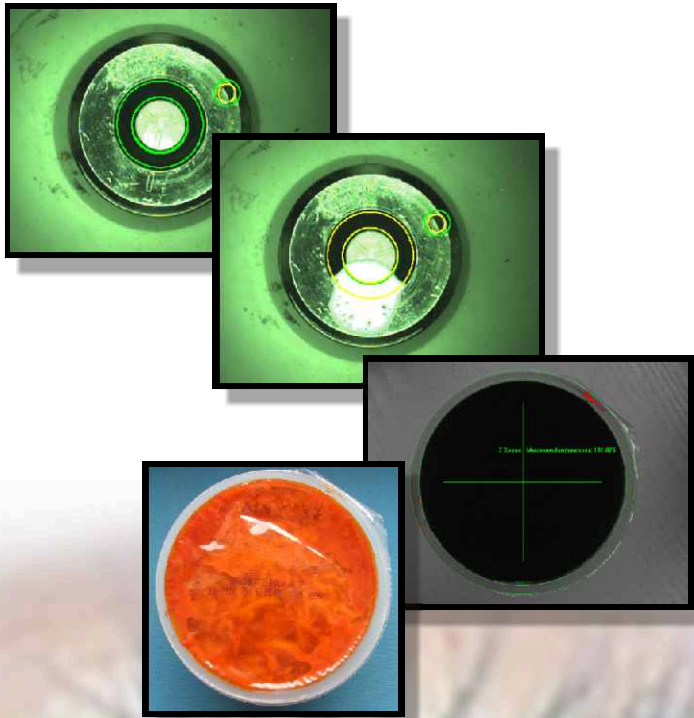
Package Inspection

- logo inspection (print, type)
- completeness inspection
- separator inspection
- unpackability
- deformation
- color



Leakage Inspection

- detection of product inclusion
- foam detection
- calcinations
- seam quality



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