



BBULL IMAGE

Quality Management with Multifunctional
Image Processing

PRODUCT SPECIFICATION

General Introduction

BBULL 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 **BBULL PC-5000** and, depending on the application, at least one inspection bridge for installation on the conveyor or in the machine.

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



Control Unit
BBULL PC-5000
with 15" graphic touch display

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-dependending, several high-resolution CCD 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 subsequent tracking to a rejection 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 a independent working real-time processing module, which is in permanent communication with the image processing system. Operation and visualization of **BBULL IMAGE** is done in one central operation unit with 15" graphic touch display.



Software

BBULL 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



Features

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.

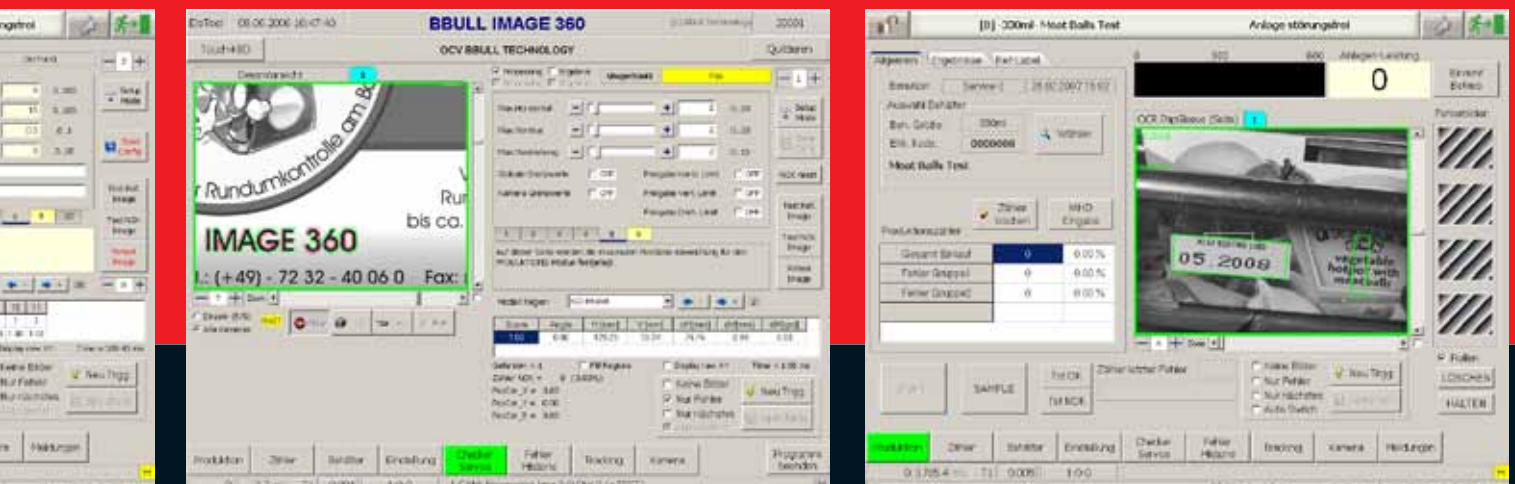
- modular design of the hard- and software components, always extendable
- single or multi-camera system
- high system stability by application of Windows XP embedded
- high line performance (up to 70.000 objects / h)
- high resolution digital CCD cameras with motor-driven adjustable optic
- low-wearing 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, colour, print, overlapping)
- text reading (OCR / OCV)
- barcode reading
- fill level inspection under- and overflow with analogue analysis
- cap quality inspection (presence, position, colour, logo, safety-ring, swing-top)
- full case inspection
- empty case inspection
- leakage inspection via detection of inclusions and calcinations



LED-illumination



PRODUCT SPECIFICATION

Label Inspection

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



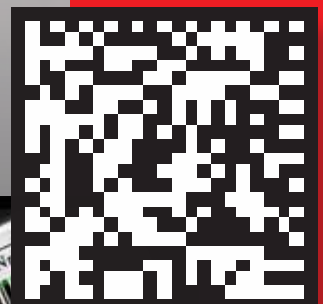
Layout Inspection

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



Barcode Inspection

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



BBULL IMAGE OCR

OCR Text Reading

completeness
readability
correctness



BBULL IMAGE 360

- total pre-delivery inspection of the produced container

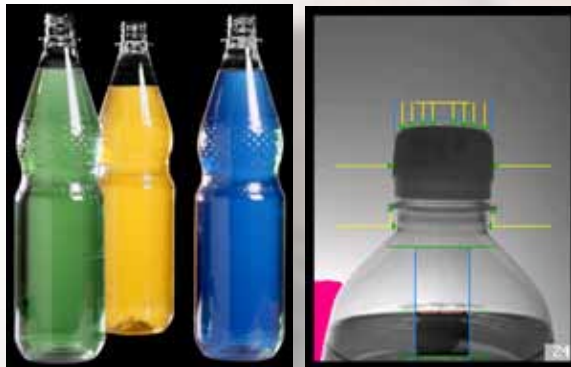


BBULL IMAGE 360

PRODUCT SPECIFICATION

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 S

- shape, height,
- cap type
- label (ACL)
- colour

Package Inspection

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



Sorting

diameter

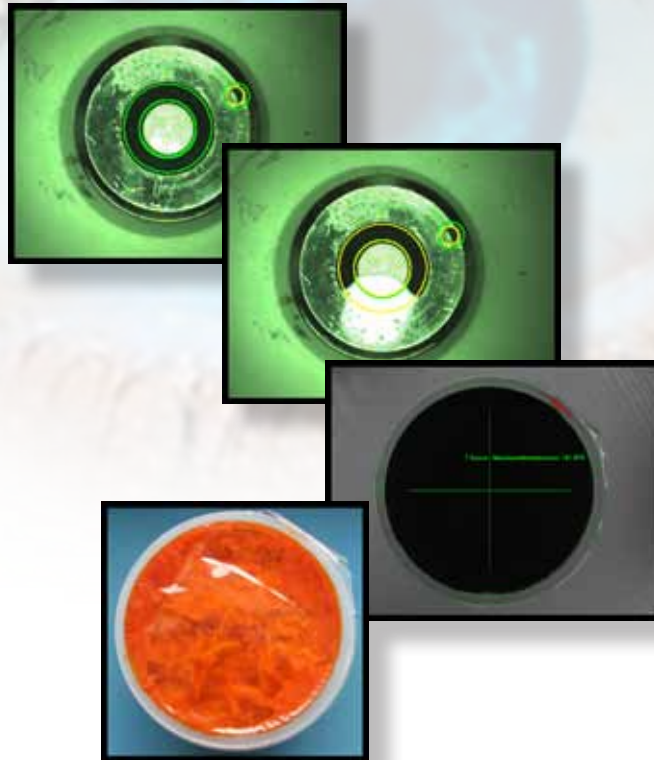


PRODUCT SPECIFICATION



Leakage Inspection

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



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