



Vision system for Quality Control



# CVS

## Vision Systems

Making the most out of our twenty-year experience, we have released the new version of our automatic vision quality inspection system which stands at the top in terms of flexibility, efficiency and friendly use. These systems can inline inspect a wide range of products at high speed and reject any defective parts which do not comply with pre-set quality standards. Our goal is to allow our customers to have better quality products, to cut costs and increase production.

SACMI CVS Vision Systems are based on the latest standard computing and image processing technologies. Inspection tools are presented using Windows graphic environment, which allows the SACMI CVS to be easy to use for unsupervised personnel. The flexibility of the system is obtained by introducing latest standard generation of image acquisition boards, cameras and optical components. In the specific case of caps and lids, the system inspects the inside and the decorated side, rejecting a wide range of defects. The data on defects are displayed on the monitor and they are statistically classified, stored, printed out, used for alarms or sent to a plant supervisor in order to provide analysis on the production line efficiency.



## Advantages

- 100% inline control quality
- Guarantee of product quality
- Reduce and prevent down times
- Minimise reject flaws
- Continuously monitor the production process
- Improve overall line production efficiency
- Increase product quality
- Low cost operation and maintenance



## General features

- Based on standard technology
- Multi-language support
- Help on-line for end users
- Freeze on defects
- State of the art illumination for uniform light and long life
- Easy to use and self learning procedure
- Modular and flexible configurations
- Total integration into production line
- Real time data
- Remote servicing and maintenance via modem
- Internet documentation support
- Networking capability

Some applications

**CROWN CAPS**



**ALUMINIUM CAPS**



**PLASTIC CAPS**



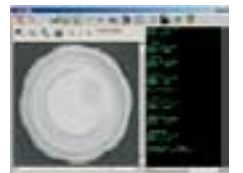
**ENDS / EASY OPEN ENDS  
PEEL OFF / EASY PEEL**



**FOOD AND  
BEVERAGE CANS**



**TWIST CLOSURES**



**PREFORM**



**LABEL**



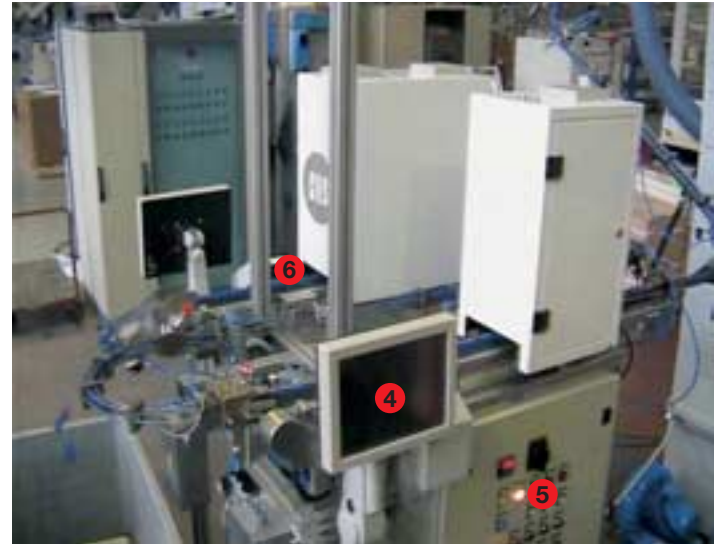
**CONTAINER**



Description	System Installation	Special features
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3600 ppm.</b>            Detected defects: malformations &amp; contaminations,            Liner defects (missing folded and more), corrugation integrity, printing defect,            colour shift and mixed deco. Scratches, flash and spots.</p>	<p>Fully fitted into the lining machine            Stand Alone Vision System.</p>	<p>Printing and color Inspection</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3500 ppm.</b>            Detected defects: malformations &amp; contaminations,            Liner defects (missing folded and more), corrugation integrity, printing defect,            colour shift and mixed deco.            Scratches, flash and spots. Tamper evident band defects.</p>	<p>Fully fitted into the lining machine            Stand Alone Vision System.</p>	<p>Side Wall Inspection by 360°. Lateral side Inspection.            Printing and color Inspection</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3500 ppm.</b>  <b>Diameter inspected from 12 to 99 mm.</b>            Detected defects: malformations &amp; contaminations,            Liner defects (missing folded and more), printing defect,            colour shift and mixed deco. Scratches, flash and spots. Tamper evident band defects.            Incomplete cap, Detection of micro-hole and micro-crack.</p>	<p>Into lining, Slitting or folding machine.            Into compression moulding machine.            After Injection moulding machine.            Before filling &amp; capping machine.            Stand Alone Vision System.</p>	<p>Cavity recognition            Side Wall Inspection by 360°. Lateral side Inspection.            Printing and color Inspection</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3500 ppm.</b>  <b>Diameter inspected from 40 to 150 mm.</b>            Detected defects: malformations &amp; contaminations,            Compound and curl defects, corrugation integrity, printing defect            Scratches, flash and spots.</p>	<p>Installation kit on customer conveyor.            Stand Alone Vision System.</p>	<p>Printing and color Inspection</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3500 ppm.</b>  <b>Diameter inspected from 40 to 150 mm.</b>  <b>Height Inspected from 30 to 250 mm.</b>            Detected defects: malformations &amp; contaminations,            Compound and curl defects, corrugation integrity, printing defect            Scratches, flash and spots.</p>	<p>Installation kit on customer conveyor.            Stand Alone Vision System.</p>	<p>Printing inspection.            Side Wall Inspection by 360°</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 3500 ppm.</b>  <b>Diameter inspected from 10 to 110 mm.</b>            Detected defects: malformations &amp; contaminations,            corrugation integrity, printing defect, Panel defects, Deco slide defects,            Scratches, flash and spots.</p>	<p>Installation kit on customer conveyor.            Stand Alone Vision System.</p>	<p>Printing and color Inspection</p>
<p><b>Complete Inside/Outside Inspection.</b>  <b>Speed up to 600 ppm.</b>  <b>Diameter inspected up to 30 mm.</b>  <b>Height Inspected up to 130 mm from neckring.</b>            Detected defects: Contamination and dirty, malformation, container integrity,            crystalline formation, crater and holes on injection point, inclusion of production,            bubbles, color variation, humidity, opacity.</p>	<p>Before the blow moulder.            After the injection machine.            Installation kit on customer conveyor.            Stand Alone System.</p>	<p>Up to 7 camera.</p>
<p><b>Roll-fed, Self-Adhesive, Hot Melt or Clod glue label Inspection.</b>  <b>Speed up to 1200 ppm.</b>  <b>Diameter inspected up to 160 mm.</b>  <b>Height Inspected up to 370 mm.</b>            Detected defects: label skew, label misappliance or unsticking.            Printing defects, contamination and dirty, wrong label reference applied.</p>	<p>Into the labelling machine.            Installation kit on customer conveyor.</p>	<p>Caps and seal inspection.            Filling inspection</p>
<p><b>Empty or filled inspection.</b>  <b>Diameter inspected from 40 to 160 mm.</b>  <b>Wide range of Neck diameter inspection: 28,38,30/25.</b>  <b>Height inspected from 150 to 370 mm.</b>  <b>Speed up to 1000 ppm.</b>            Detected defects: contamination before filling, container integrity,            bad filling, bottle leak and bad capping, dirty.</p>	<p>Into the Filling machine.            Before /After the Filling machine.            Installation kit on customer conveyor.</p>	<p>Caps and seal inspection.            Filling inspection</p>



- 1 Detection sensor
- 2 Illuminator
- 3 Camera and optical parts



- 4 Display/use interface
- 5 Vision System processor
- 6 Rejection device

## Functional description and components

The photos illustrate the activities involved in inspecting parts travelling on high speed production line.

The inspection process begins at step (1) when a part is detected by the sensor.

This triggers the vision system to strobe the light source for an instant of time, freezing the motion of the part, as shown in step (2).

Once illuminated, an image is picked up by the camera and sent to the Vision System (3). Steps (4) and (5) correspond to storing, analysing and displaying the image.

Once the Vision System determines whether or not the part is acceptable,

it activates the correct output mechanism to either pass or reject the part.

If the part is defective, it is removed from the production flow by a rejection device, typically an air blow (6).

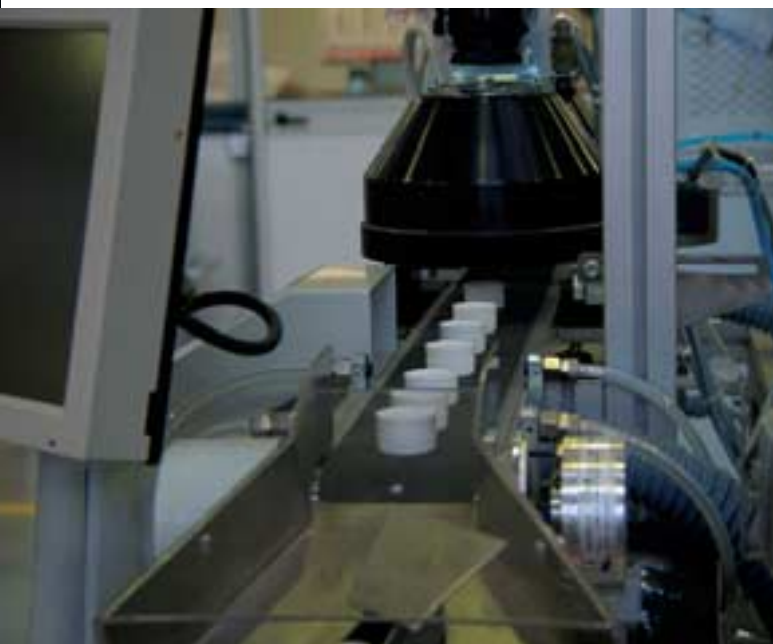
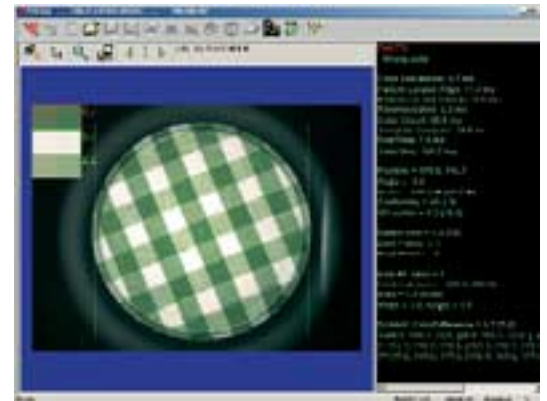
Lastly statistical data are updated and displayed.

Supply voltages	200 / 220 / 380 / 400 / 415 / 440 / 460 / 480 VAC
Power requirements	(50/60 Hz) 1 kW
Power absorbed	(50/60 Hz) 1 kW
Auxiliary voltages	220 VAC - 24 VDC - 48VDC
Air pressure for ejection	5 Bar
Air usage (*)	800 NI/min
Operating Environment	0 - 50 °C (32-131°F); non-condensing humidity
Humidity non-condensing	10 - 95 %

Processor	Pentium family
RAM	512 Mbytes or more
Hard disk	10 Gbytes or more
Floppy disk drive	3.5", 1.44 Mbytes
DVD Writer	32x or greater
Monitor	Flat Color LCD TFT From 12"
Pointing device	Touch screen
Keyboard	Touch screen
Operating System	Windows XP

(\*) Theoretical usage during continuous operation.

Windows XP is trademark of Microsoft Corp, Pentium is trademark of Intel Corp  
Specifications are subject to change without notice resulting  
from ongoing product improvements.



Camera	Standard resolution (B/W 768x493) 30 or 60 Hz, Progressive Scan, High Resolution camera (1280x1024), Multiple cameras supported. Color and linear cameras.
Maximum speed	up to 3600 ppm.
Communications	Ethernet LAN - Remonitoring and control via phone line and modem
Physical Characteristics	System control module dim: 550x600x450 mm Weight 50 Kg. Inspection module dim: 630x730x420 mm Weight 45 Kg. (Standard inspection box: it changes depending on applications).



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