BBULL®
TECHNOLOGY

# BBULL MAS

## Leakage Inspection for Crown Caps

# PRODUCT DESCRIPTION

## General

Among the inspection of underfilled bottles or bottles without seal or label, the inspection of leaking bottles is an essential requirement to quality assurance in the beverage industry. Leakages influence the quality and durability of products directly and thus are not acceptable for consumers or bottlers. Therefore leakage inspectors are standard products of quality management in the beverage industry.

The acoustic technology of **BBULL MAS/P** is for indirect pressure measurement in $CO_2$ containing beverages. The MAS technology can be applied for glass bottles with metal cap, that do not have any measurable deflection, e.g. beer bottles with crown cork.

The acoustic sensor MAS works by applying an electromagnetic impulse to the top of each container. The "pulse" is produced by a strong electromagnetic pulse, which excites the container lid. The lid vibrates at an individual resonant frequency "tone", based on internal pressure. The resulting "acoustic" signal is received by a microphone, digitally sampled and stored in memory for processing. The pc-based processing software produces a real-time signal spectrum and calculates the resulting frequency of the "signal" for every lid. Thereby the internal pressure is directly proportional to the vibration frequency of the inspected container.

Additionally the lid deflection is inspected by „analogue proximity technology". An electromagnetic proximity sensor produces a permanent magnetic field for monitoring the distance between sensor and metal cap and produces a distance-depending proportional analogue voltage. The permanent proximity signal is digitally sampled for producing a performance-related value of the cap profile.

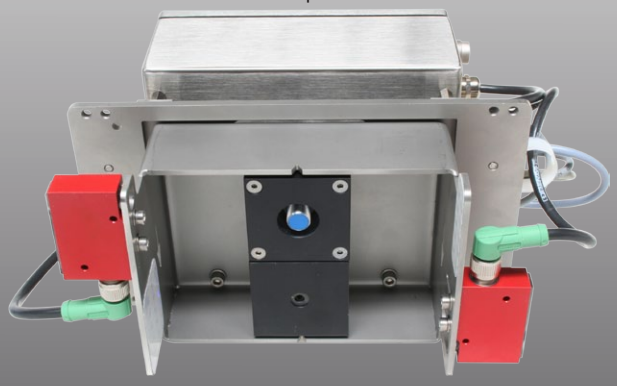
The profile value as well as the frequency value of the closure is compared with the user set limits of container format in which containers with a frequency response outside these limits are rejected.

## Applications

- recognition of too little pressure / vacuum
- recognition of too much pressure
- recognition of cap leakage
- recognition of hair cracks
- recognition of missing compound
- recognition of broken glass in the area of the neck
- recognition of cocked caps

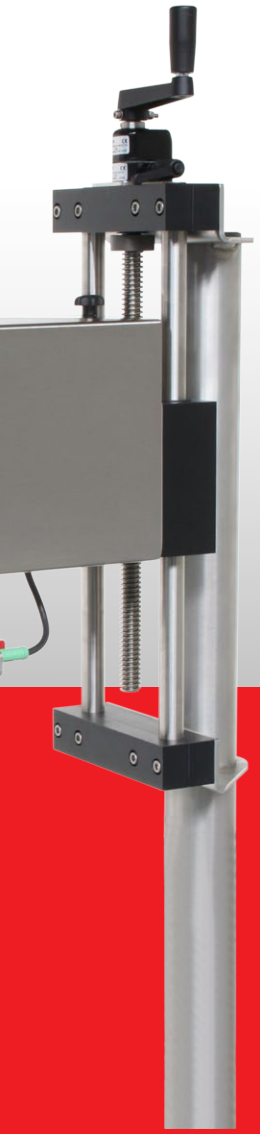
BBULL MAS sensor bridge

BBULL MAS inspection head



# Installation Place

For getting high measuring accuracy we recommend the maximum possible distance from the closer to **BBULL MAS/P** So there is enough time to set up a pressure inside the container which is reduced in case of leakages. Best results can be achieved in combination with a pasteurizer or after labeller.



# Detection Values

The inspection principle allows the detection of leakers only when the product specific pressure has been reached. This pressure is basically depending on the $CO_2$-level or temperature of the product. A reliable measurement is only possible when the pressure inside the faulty bottles is decreased significantly to differ faulty bottles from good bottles.

To reach constant measurements we recommend maximum possible distance from the closer to the **BBULL MAS/P** Leaking bottles must reduce the internal pressure to differ constantly from good bottles .

Thus a statement of inspection reliability is always depending of the installation place and is always related to the difference to the normal pressure of good bottles.

BBULL® TECHNOLOGY

# System Assembly

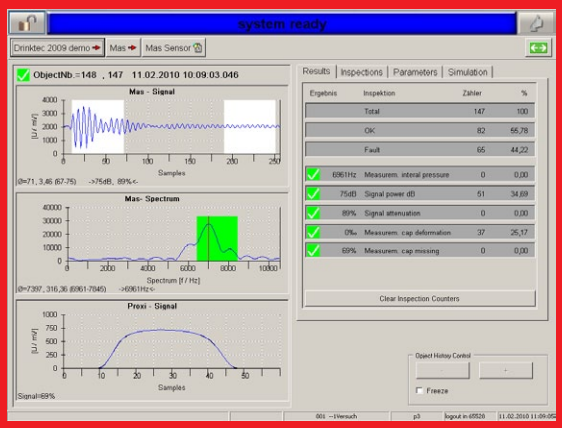
The processing software of **BBULL MAS/P** is installed on a pc-based Inspection System.

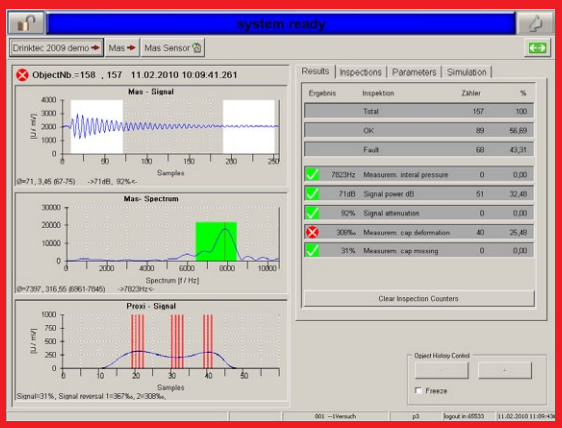
**BBULL** offers the basic configuration with a **BBULL 500** control unit, with 13" touch display with alphanumeric user interface.

In combination with monitoring systems **BBULL 5000** with 15" touch and graphical user interface **BBULL** offers additional inspections like e.g. camera-based label or cap inspections.

# Additional Options

- fill level Inspection
- label inspection
- cap inspection
- rejection system for faulty bottles



# TECHNICAL DATA

BBULL® TECHNOLOGY

| | |
|---|---|
| Max. line speed in bottles per hour: | 75.000 |
| Power supply in V: | 24 (18 - 30) |
| Power consumption in VA: | < 10 |
| Surrounding temperature in °C: | 5 – 42 |
| Network interface: | Ethernet |
| Sensor system: | 1. Analogue proximity sensor<br>2. Magnet acoustic |
| Dimensions inspection bridge (WxHxD) in mm: | 450x260x170 |
| Weight inspection bridge in Kg: | 12 |
| Enclosure: | IP33 |

STRATEC CONTROL-SYSTEMS GmbH • Ankerstrasse 73 • 75203 Königsbach-Stein
Telefon (+49) 72 32- 40 06- 0 • Telefax (+49) 72 32- 40 06- 25
www.bbull.com