ANTARESVISION

LYO CHECK

A DISRUPTIVE INNOVATIVE MACHINE FOR VISUAL INSPECTION OF LYO PRODUCTS

Horizon 2020

The **LYO-CHECK** is an automatic industrial machine designed for the visual inspection of lyophilized pharmaceutical preparation for injectable use (parenteralia).

The **LYO-CHECK** machine exploits two technologies for a full inspection of the lyo products: visual inspection for foreign matters on the product, cosmetic and functional defects on the primary container; moreover the machine can be equipped with Head Space Gas Analysis for cointainer closure integrity.

The machine belongs to a range of equipment goes up to whose capacity up to 600 containers/ minute.

Reject verification system based on "fail-safe" principle ensures that containers recognized as defective will not reach the exit channel of good products.

The machine can be run by a single operator through the built-in touch-screen display, where all the controls and configuration functions are available on a FDA 21CFR11 compliant Graphic User Interface.

DISRUPTIVE TECHNOLOGY, PATENTED SOLUTIONS

WIDER INSPECTION SPACE

Exclusive main inspection carousel design features a combination of grippers and column-free configuration

The machine main inspection carousel has a patented design without central column and without conventional spindles to hold the products, allowing:

1) The cameras to be placed at a bigger distance from the object, thus obtaining the perfect focus without need for re-adjustment
2) The lighting source to be placed on different sides around the product to be inspected as per conventional configuration
3) Cameras to be angled (rather than pointing straight at the product)

PERFECT LYO CAKE INSPECTION

Proprietary optical architecture features three different lighting sources

A patent has been filed for a specific optical layout that targets the upper portion of the lyo cake. This is formed by three different lighting sources, with a specific angle of incidence towards the product, and with a specific intensity (lux).

The result is a much **higher quality of the images** that are acquired, which eliminates almost all shadowy effects that are present on the morphology of the lyo cake for foreign matters thus minimizing false rejects. In this way the «moon-like» surface of the lyo cake can be properly inspected.

HIGH PRECISION CRIMP INSPECTION

Dynamic seal inspection for the quality of the crimped aluminum seal of the vial using second carousel

A patent has been filed for a specific design of a new type o**f inspection station dedicated to crimping and neck inspection**. The station is based on a dynamic inspection which exploits an external turret (or second carousel) composed of a series of cameras and at least two types of lighting sources: from the top and from the bottom. Each light type has therefore a different angle of incidence versus the zone to be inspected and allows for the creation of a different environment, helping to maximize the defect visibility. The container is put in rotation 360° and the cameras - installed onto a tilting arm - follow the product along the path.

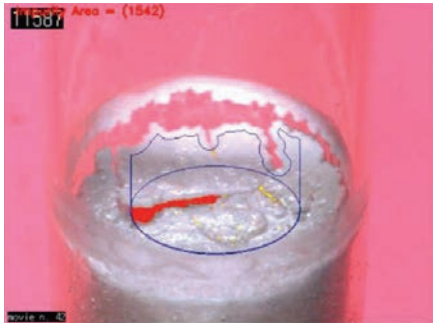
PERFORMED INSPECTIONS

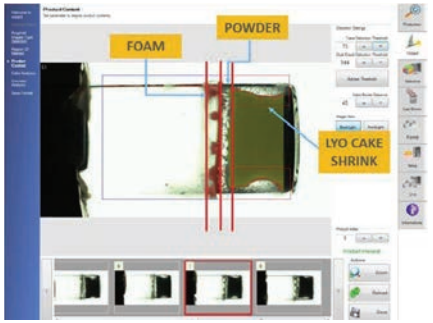
- Particles inspection on the product surface
  / Over the product
  / Visible from a lateral view
  / Visible from a bottom view
- Filling level checking
- Product remained liquid or cake melt-back
- Flip-off cap: color and integrity
- Glass defects: body / bottom / heel
  / Cracks and scratches
  / Stains
  / Air bubbles
  / Chippings
- Crimp defects
  / Dents
  / Bumps
  / Wrinkles

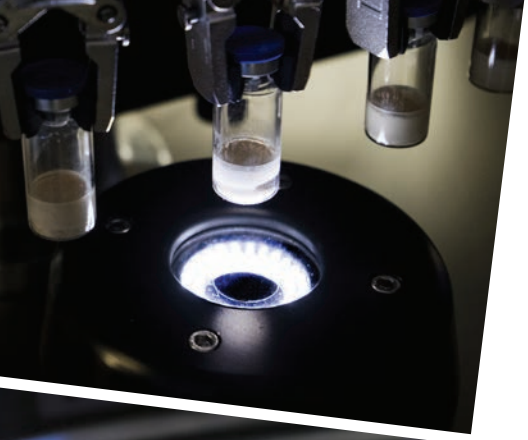
Available option: leak test with vacuum & pressure decay technology.

BENEFITS AND ADVANTAGES

- High throughput (up to 600 containers/minute)
- High accuracy: 100% cosmetic inspection with detection of defects
- High reliability: multiple and dedicated lighting configuration to enhance defects and minimize the risk of false rejection
- Non-destructive integrity check and in-line process control with Head Space Gas Analysis
- Automatic rejection system with various outlet channels depending on the nature of the defect
- Multiple high resolution camera inspection system with high speed image processors
- Wizard menu for new recipe or modification of current recipe
- Fully automatic height adjustment of carousel by servo-assisted screw jacks to accommodate different vial sizes
- Handling system with grippers which allows for easier bottom inspection as well as higher diffusion of light
- The carousel design with external telescopic columns allows for easy access for both maintenance and cleaning procedures



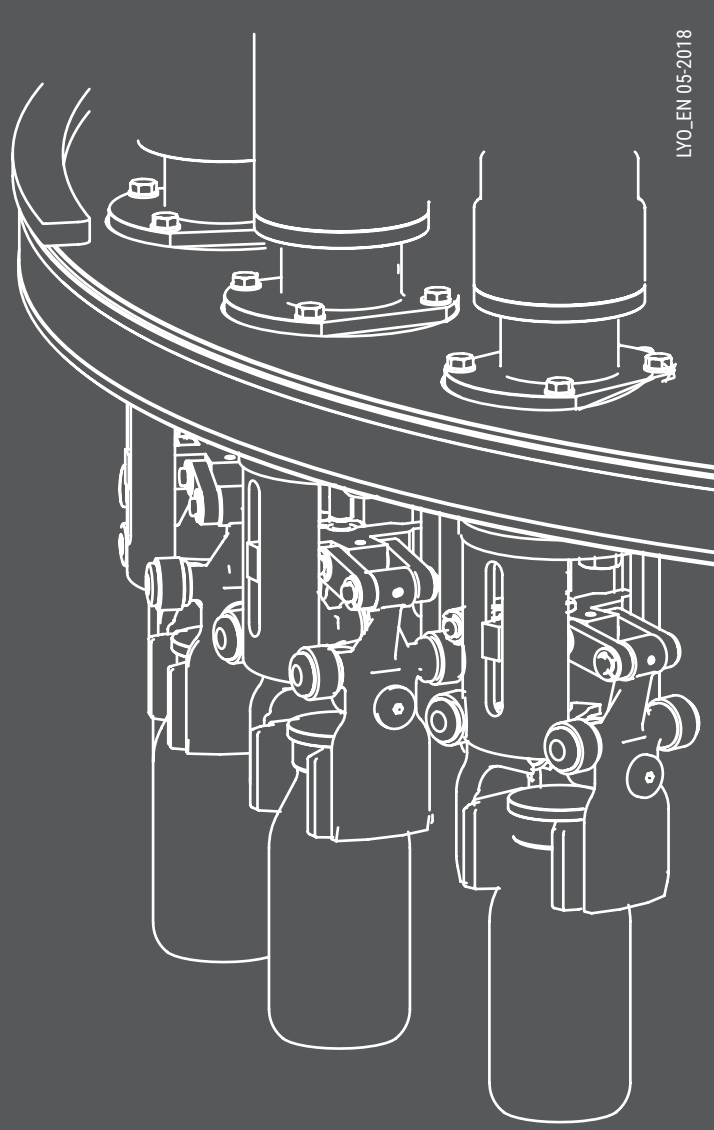




THE LYO-CHECK PROJECT

The LYO-CHECK project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No. 738523 thanks to:

- An innovative idea compared to the state of the art, based both on handling and software implementation;
- The company's well-proven competence in visual inspection, and specifically in the advanced analysis on pharmaceutical products;
- A robust team of mechanical, vision and software engineers;
- A solid business plan and detailed project timing.



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ANTARESVISION

Antares Vision delivers the most comprehensive and scalable global solution in **inspection systems**, **track & trace** and **smart data management**, leading the complete process of protecting the products throughout their life-cycle. We are the natural choice for many applications in the most demanding sectors including pharmaceuticals, medical devices, cosmetics, food & beverage.

INDUSTRY 4.0 COMPLIANT

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