

X-RAY INSPECTION SYSTEM DSV



DESCRIPTION

The **Dymond DSV** unit is fully a self-contained X-ray inspection machine which, installed directly onto the production line, detects extremely small foreign inside filled and labelled cans and glass jars which can be of variables shapes and sizes. This unit is equipped with a high-resolution detection system that allows inspection of food and pharmaceutical products, travelling in vertical position on the production line.

The sophisticated software which powers the unit allows, on the one hand, to inspect products at very high speeds (up to 50 m/min), on the other, to discriminate true contamination from container imperfections or from other disturbance elements.

Such a software is able to communicate with the existing factory information systems (automation control systems, databases, etc...).

The unit can be equipped with an Internet access for remote control in real time (for production analysis and troubleshooting).

The main X-ray components of the **Dymond DSV** are:

- Two X-ray detectors
- One X-ray generators with integrated x-ray tube

The main feature of **Dymond DSV** is the double point of view: a single generator illuminates two detectors positioned at 35° to each other so that the product is examined twice.

The double view of the product provided by the double X-ray has the following advantages:

- maximum probability of detection in the critical areas of the product: under the cap (generally metallic), against the sidewall and on the bottom of the container.
- maximum probability of detection when the contaminant is wide but thin and when the contaminant is a splinter that could be undetectable with only one point of view.

The combination of such X-ray system and Dylog proprietary software sets **Dymond DSV** in to best conditions to obtain high performances both in contaminant detection and product feature recognition (with detection probability in some cases close to 100%) and with a minimum number of false rejects (lower than 5/10.000 pieces in optimal conditions).

The X-ray system is designed upon the following criteria:

- Very small dimensions of the X-ray focal spot
- Very short distance between X-ray source and inspected product
- Very short distance between product and detector

The main benefit is the achievement of a much higher than normal image contrast which leads to distinguish much smaller elements/contaminants in the image.



Hardware

- Inspection module totally made of stainless steel (INOX AISI 304) for food/pharmaceutical industry environment
- Protection level: IP65 (IP 54 on the air intake).
- Output signals for inverter and full line control.
- Encoder for automatic control and high accuracy rejection.
- Two NEW long lasting 512 – 640 – 1024 pixels X-ray sensor. Low X-ray energy requirements.
- Detector resolution 0.8-0.4 mm.
- One X-ray Generators 100 kV, 10 mA with special collimator to reduce x-ray dose to the product.
- One X-ray Tube, 1000 W
- Industrial PC.
- Industrial Touch-screen with high contrast 21" LCD monitor
- Electronic conversion interface, data transfer cable, 32 I/O modules.
- Air conditioner 1,9 kW (Nema4X)
- Max operating temperature : 35 °C

Software

Complete diagnostic software with the following functions:

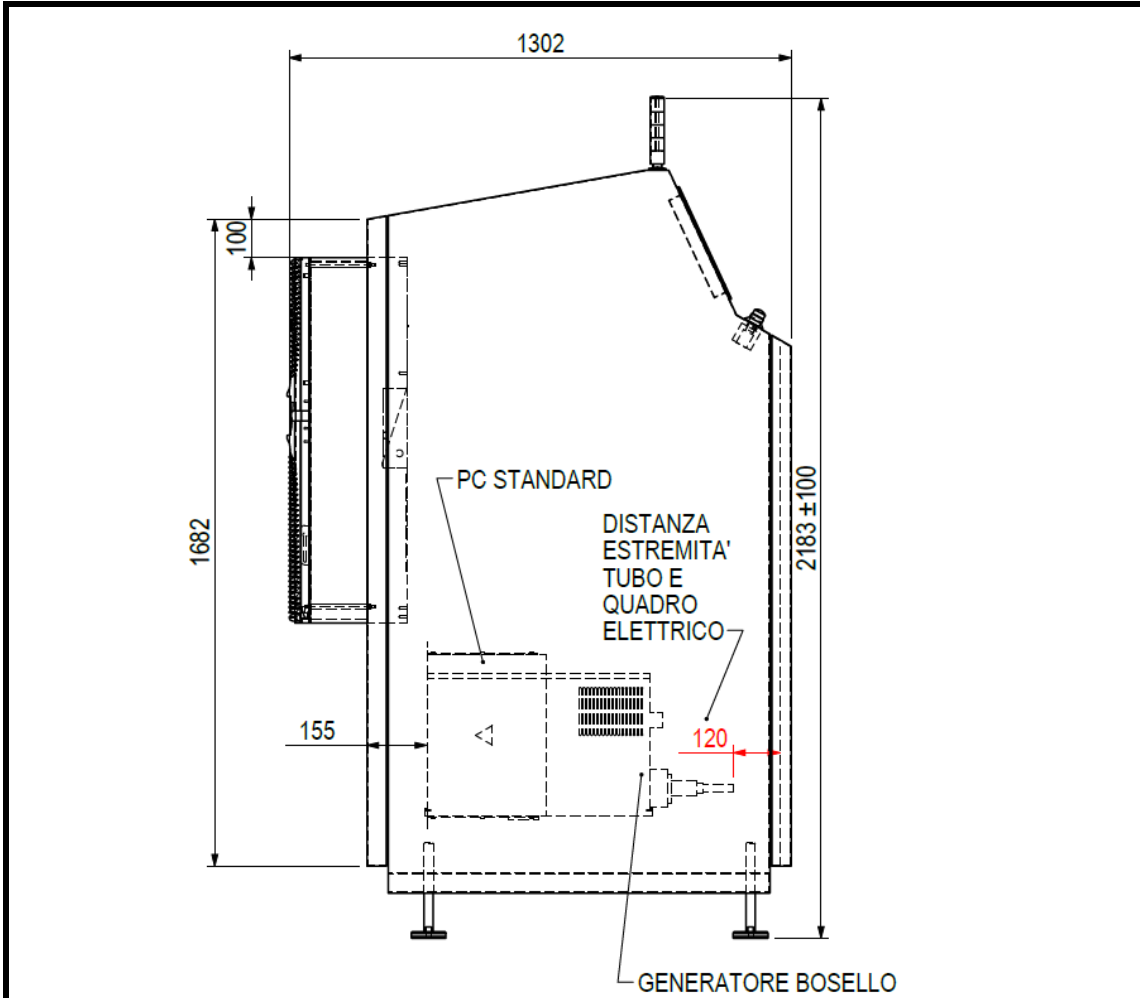
- Alarm checking
- X-ray generator control
- X-ray sensor checking
- Control of supply external circuits
- PLC simulator for line control
- Automatic sensor calibration
- Reject and stopper control

Image processing software with the following functions:

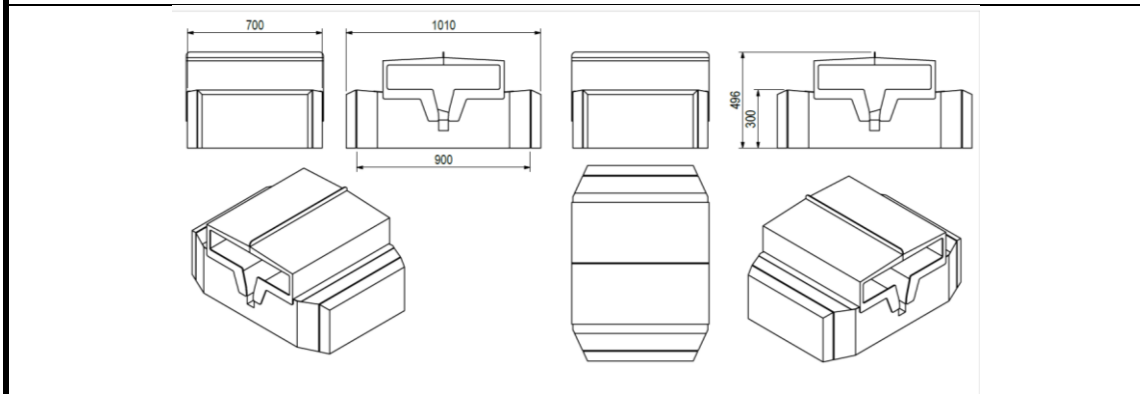
- Automatic operation without operator (X-ray ignition and cut-off, calibration, reject, production status, rejected products status, images and statistic data backup)
- Options for self-tuning parameters
- Manual image acquisition and processing
- Option for parameter tuning help
- Operative System: WINDOWS 10



Footprint



Handling system structure



Beam geometry

