

X-ray Inspection of Meat Chubs

Aluminum clips and bones in chubs can lead to consumer complaints. These low density contaminants are usually difficult to detect, but the Anritsu XR75 x-ray system easily and repeatably finds these hazards, ensuring product quality.

Challenge

Compared to stainless steel, aluminum and bone are both relatively low density materials, which presents a tough challenge for most x-ray systems.

The customer's highest priority was detecting aluminum end sealing clips that can find their way into chubs. The company's existing inspection systems could not reliably detect clips within the product.

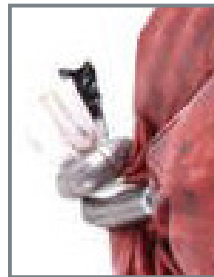
The second target contaminant was bone that survived mixing and grinding; potentially causing harm to the consumer and the brand.

This report is based on product testing for one of the world's largest food producers, who were concerned about two contaminants in their ground beef chubs.

Goals

- 1 Find the following contaminants inside the product:

Primary

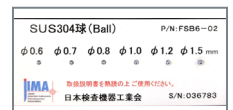


5.0mm aluminum clips

Secondary



3.0-4.0mm bone pieces



0.8mm stainless steel

- 2 Identify products with missing end clips.
- 3 Check product weight.

Product

The customer supplied 1lb and 10lb ground beef chubs.



10-pound chub



1-pound chub

Results

Detection Capability

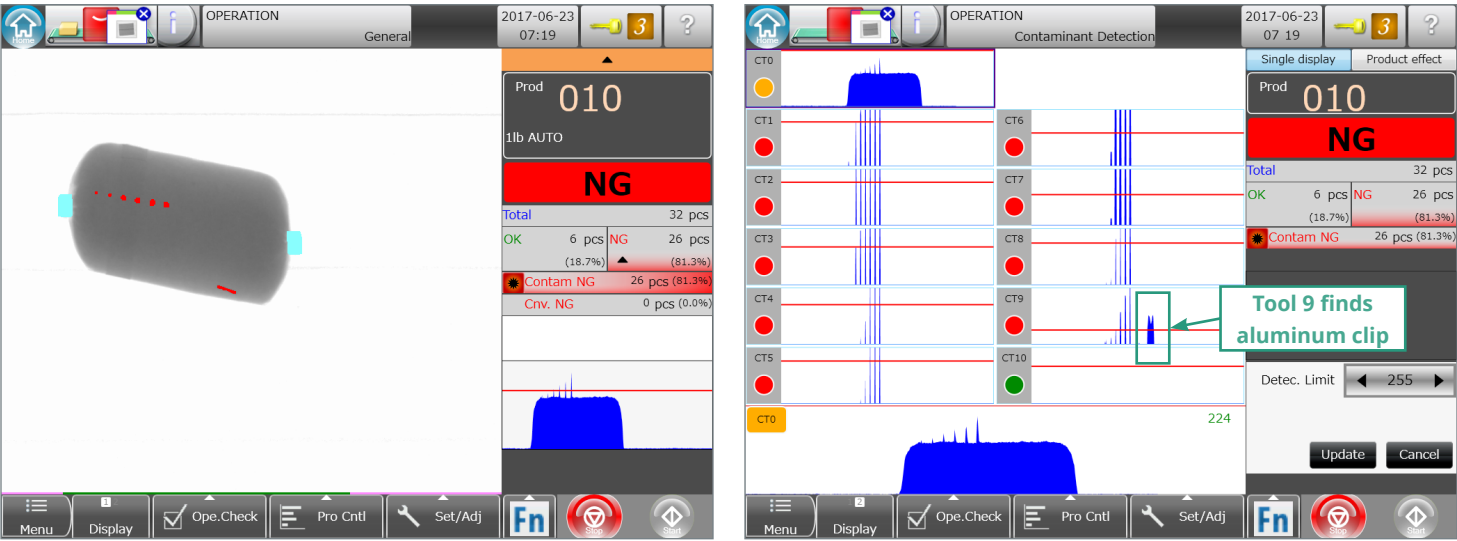
- Stainless steel inside product: Down to 0.6mm thick
- Aluminum clips inside product: Down to 5.0mm long
- Bone pieces inside product: Down to 3.0mm thick
- Detect products with missing end clips

Test Highlights

- Repeatable detection of low density contaminants in ground beef, even in product edge areas
- Minimal false rejects

Edge Detection

Finding low density contaminants on product edges can be challenging because of the variance in product thickness. The XR75 had no trouble detecting aluminum clips anywhere within the product.

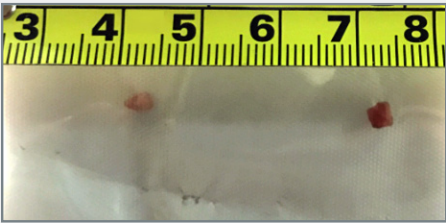


X-ray image shows stainless steel test card (left-middle) and aluminum clip (bottom-right)

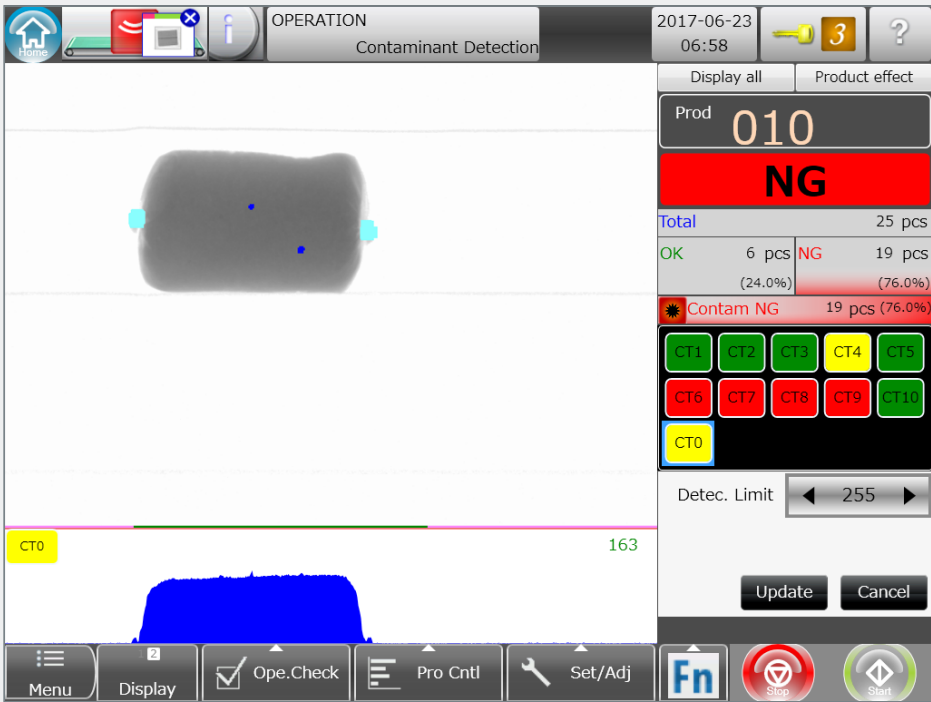
Tool #9 detects the aluminum clip, while multiple tools easily pick up the stainless steel, completely isolating the beef product for extremely low false reject rates..

Finding bone fragments

In addition to detecting the aluminum clips, the XR75 tests discovered numerous bone pieces in the customer-supplied products.



Bone pieces were approximately 3mm cubed.



Missing Clips and Masking

The XR75 can identify missing clips with its counting function, ensuring that two clips are present in each product.

False Reject Prevention

The masking feature also prevents false rejects from the product end clips, as the software allows masking those areas, effectively hiding them from detection.

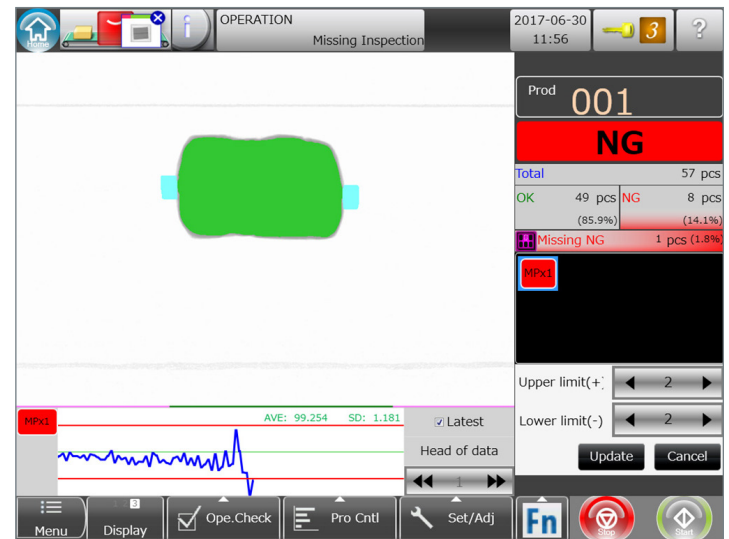


Product Weighing

The XR75 has a virtual weight estimation feature that can reject products based on weight.

This feature also includes a weight trend chart at the bottom of the screen that helps identify under/over weight trends.

The production data can be saved for work shift or entire day analysis.



Testing Solution

To find aluminum clips, bone pieces, and stainless steel, Anritsu inspected the chubs with a standard XR75 x-ray system.

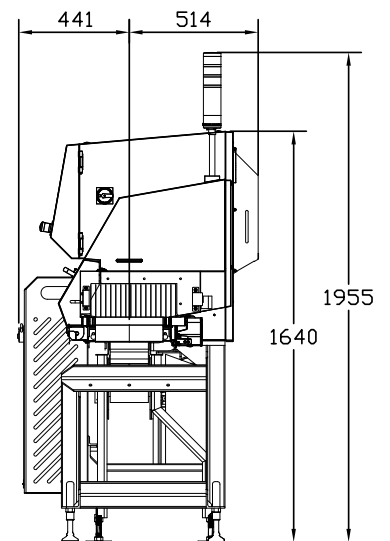
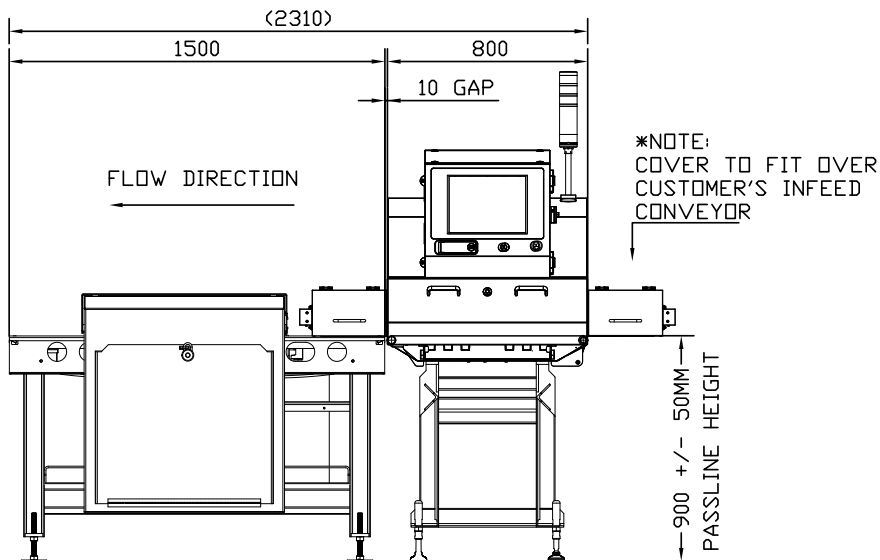
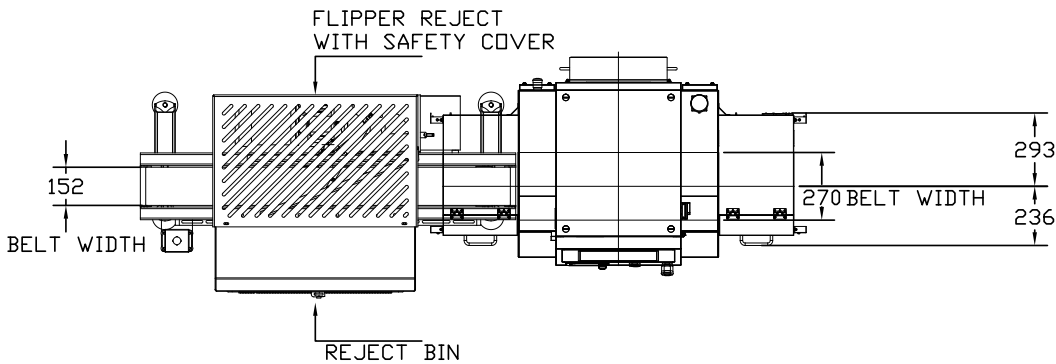
The XR75 is engineered to detect both high density metals and low density contaminants with high accuracy and consistency.

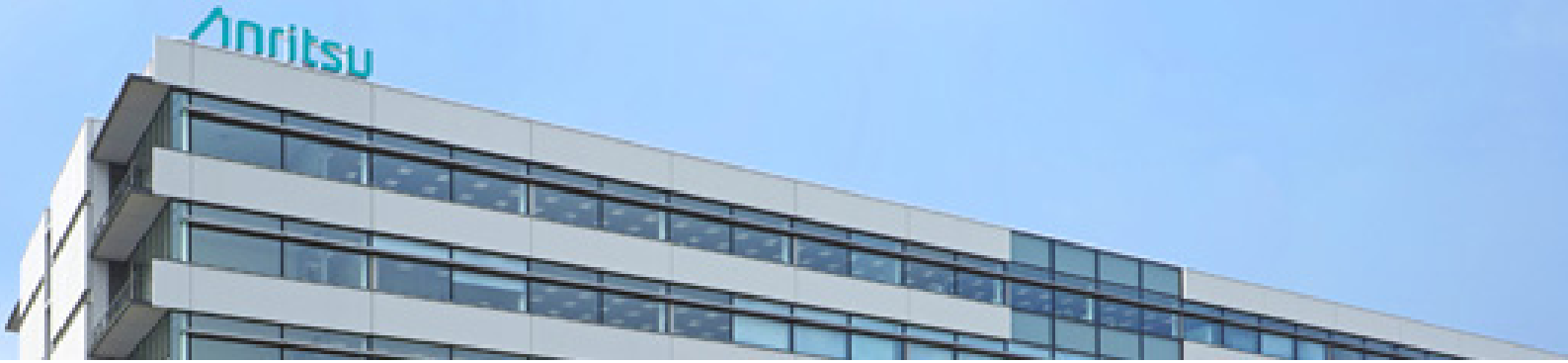
The system has long-life x-ray components that provide extremely low total cost of ownership.

The Final Solution

XR7522AVCLE X-ray Inspection System

- 100mm extension covers
- Upgraded motor
- Side guides
- Speed: 60ppm 10lb chub, 140ppm 1lb chub
- Flipper reject with cover and reject bin





ABOUT ANRITSU

Anritsu reflects a long legacy of precision engineering, quality assurance, and care, giving customers the highest levels of performance, reliability, and customer support.

Originally founded in Japan in 1895 as an electronics manufacturer, Anritsu grew into an international producer of testing and inspection equipment for communications & networks, and food & pharmaceuticals.

Anritsu Infvis—Inspection Division:

Established in 1964, Anritsu Infvis is one of the largest producers of inspection equipment for food and pharmaceutical packaging/processing.

PERFORMANCE 360

- 24/7 technical support
- Remote servicing and monitoring
- Training
- Quality Inspection Service
- Compliance and certification

ANRITSU X-RAY SYSTEMS

Anritsu x-ray machines have more installations globally than any other manufacturer.

- The #1 food x-ray supplier worldwide
- The world's most accurate x-ray inspection systems
- Low energy tube for up to 300% longer tube life than conventional x-ray
- Small footprint



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ANRITSU FOOD INSPECTION PRODUCT LINES

X-RAY



CHECKWEIGHERS



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