Product Brochure
October 2022

Anritsu

Dual energy sensor technology

DualX X-ray Inspection System



Equipped with Newly Developed Dual Energy Sensor

Minimize false rejects and provide reliable contamination detection of poultry and meat products

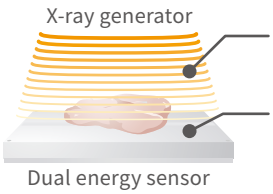
Broiler chickens that are selectively bred for rapid growth tend to have relatively less bone mass to the thickness of the meat. With the advanced Dual energy sensor, Anritsu DualX X-ray Inspection System performs reliable and consistent inspection of poultry products.
The DualX analyzes two different X-ray energy signals, allowing the system to distinguish between the product being processed and contaminants for a higher detection rate of low-density bones.

Dual Energy Technology

Benefits

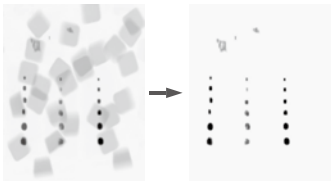
1. Provide reliable detection of thin, low density bones.
2. Deliver high detection sensitivity for inspecting overlapping products and rough surface products.
3. Minimize false rejects in bulk flow inspection.

Mechanism

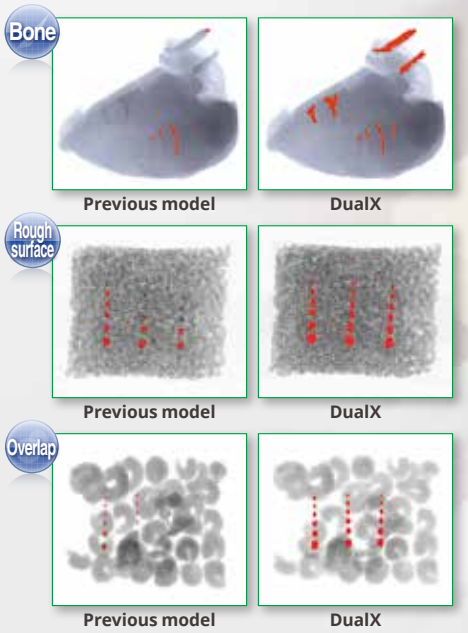


X-rays have multiple level energies.

Two different images are obtained at high energy level and low energy level.

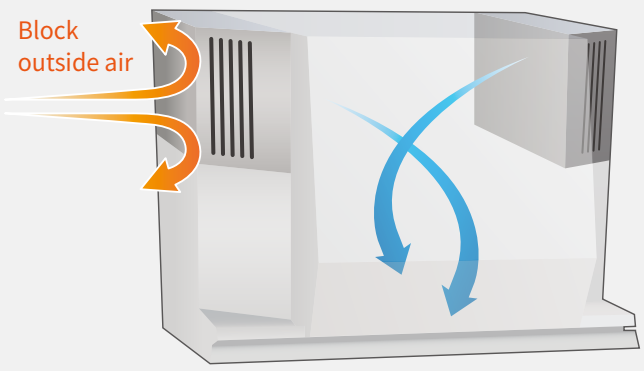


Dual energy subtraction better highlights contaminants.



The environment-resistant heat control system

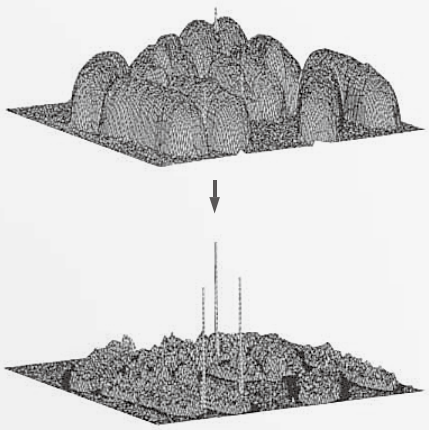
Fully sealed heat control system is designed to withstand challenging production line of unpackaged bulk products, such as meat and sausage. Our unique cooling solution seals and protects the system from outside air exchange, reducing failure rates and minimizing production line downtime.





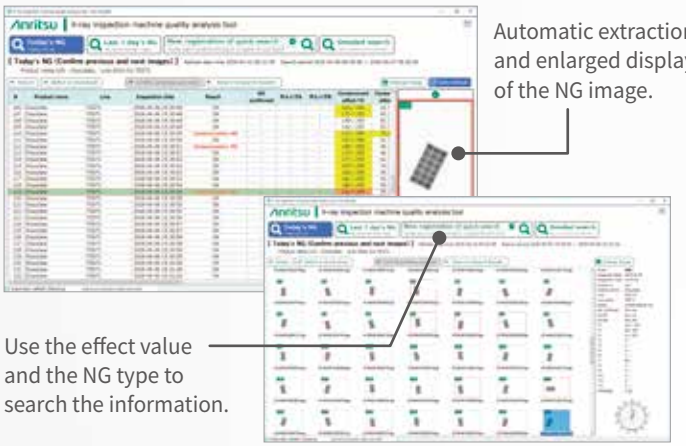
Cutting-edge algorithms

With Anritsu signal-processing technology and image-processing algorithms, the DualX delivers outstanding contaminant detection of the low-density types of poultry bones. The advanced DualX technology reduce false rejects and maximize production yield on your production line.



Thorough quality control and analysis

All the information is easily accessible in one central location with QUICCA3. Each X-ray transmission image during inspection is automatically saved for complete product traceability. The automatic extraction function allows a processor to check X-ray images of products before and after the defective product on the screen, which helps find future problems before they occur.



Examples of food applications

Inspection of bone fragments

Chicken breast





Dark chicken meat

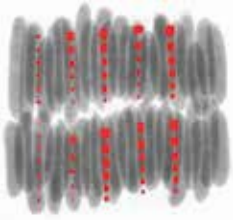




Contaminant inspection of overlapping products

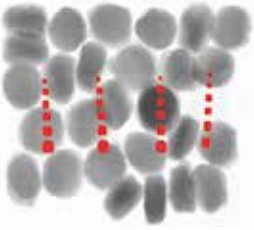
Sausages





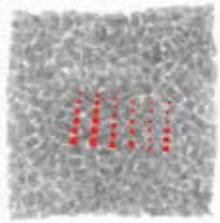
Chicken nuggets





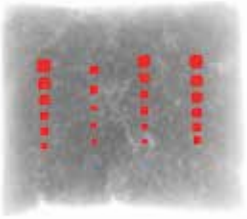
Shredded bacon





Ground meat





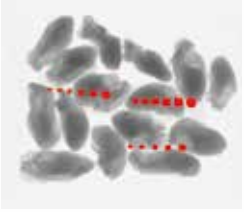
Granola





Oyster





Safety in design

XR75 Dual Energy

Anritsu believes customer safety is of utmost importance.

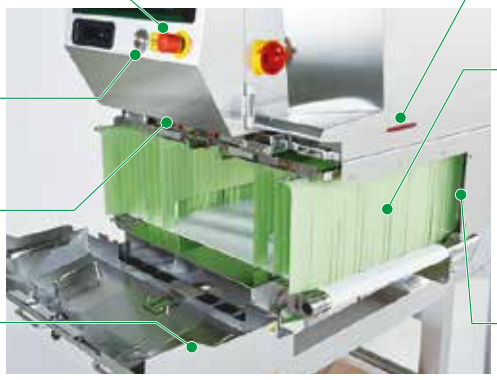
Anritsu safety mechanism

Emergency stop switch
Cuts power to x-ray and drive circuits, stops the conveyor and x-ray radiation.

X-ray ON/OFF key
Turning the key to OFF stops x-ray radiation completely.

X-ray shield cover open/close sensor
Opening the cover stops x-ray radiation.

X-ray shield cover
Opened/Closed using x-ray Irradiation ON/OFF Key.
Opening the cover stops x-ray radiation due to the x-ray Shield Cover Open/Close Sensor.



X-ray irradiation display
The lamp is lit during x-ray radiation.

Leakage prevention curtain
Prevents x-ray leakage. For unpackaged or bulk products, the standard lead impregnated curtains are replaced with SUS covers - preventing direct food contact with the curtains.

Hand insertion sensor
Interrupting the sensor for a certain period of time stops x-ray radiation.

Safety management

X-ray inspection system has been designed to fully satisfy the safe operation. However, to ensure even higher safety, use the safety procedures outlined below.

❶ Periodic measurement and recording of x-ray leakage data

❷ Management of operator working hours

❸ Additional safety measures
Covers may need to be mounted on upstream and downstream conveyors instead of the shield curtains, depending on the shape, weight, and package of products.

❹ No disassembly or modification
NEVER modify or disassemble the main unit, covers, x-ray leakage prevention curtains, safety covers, safety interlocks, etc., otherwise the x-ray leak-proof design may no longer be functional.

X-ray Radiation Safety

Safety of Inspected Products
According to the World Health Organization (WHO), “irradiation of any food commodity up to an overall average dose of 10 kGy presents no toxicological hazard and introduces no special nutritional or microbiological problems.” *
The maximum dose of x-ray radiation to the products moving through Anritsu x-ray inspection systems is 2.0 mGy, which is 5 million times lower than the WHO threshold.

*Wholesomeness of Irradiated Food: Report of a Joint FAO/IAEA/WHO Expert Committee, 1980

Safety of Humans
The average U.S resident receives a total radiation dose of 6.2 mSv/year (620 mRem). About one third (2.4 mSv / 240 mRem) of that annual radiation derives from natural sources like the sun and soil. The rest comes from manmade sources like medical procedures (a typical chest x-ray generates about 0.1 mSv / 10mRem) or air travel (a round trip flight from New York to Tokyo is about 0.2 mSv / 20 mRem).
Throughout the world, most governments consider 20–50 mSv/year (2,000–5,000 mRem) to be safe for occupational workers. Anritsu cabinet x-rays are engineered to meet some of the strictest emission standards in the world. A typical Anritsu x-ray solution is designed for maximum dosage of 2.0 mSv/year (200 mRem) This is based on the improbable scenario of a worker continually being 2 inches (5.08 cm) from the x-ray machine 2,000 hours/year (40 hours/week × 50 weeks). For typical work environments, the actual radiation dose from the cabinet x-ray to the worker is negligible.

Note: Please follow the local laws and regulations regarding the installation and use of the x-ray inspection systems.

Major Specifications

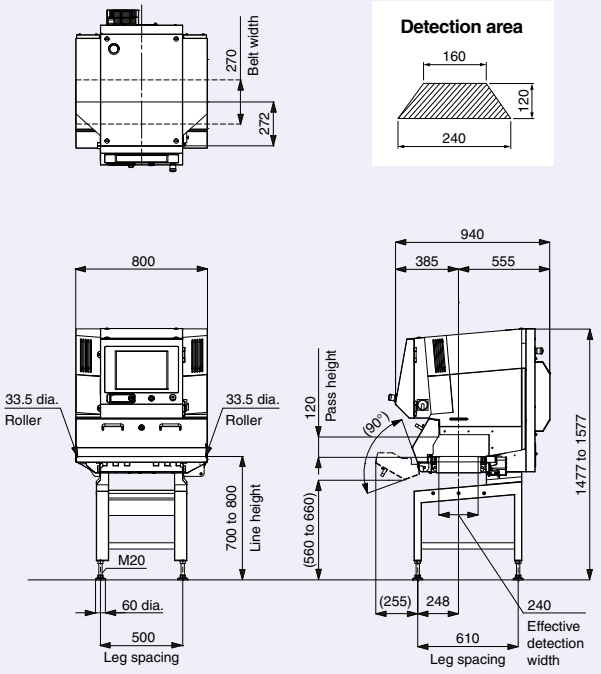
XR75 Dual Energy

For Packaged Products

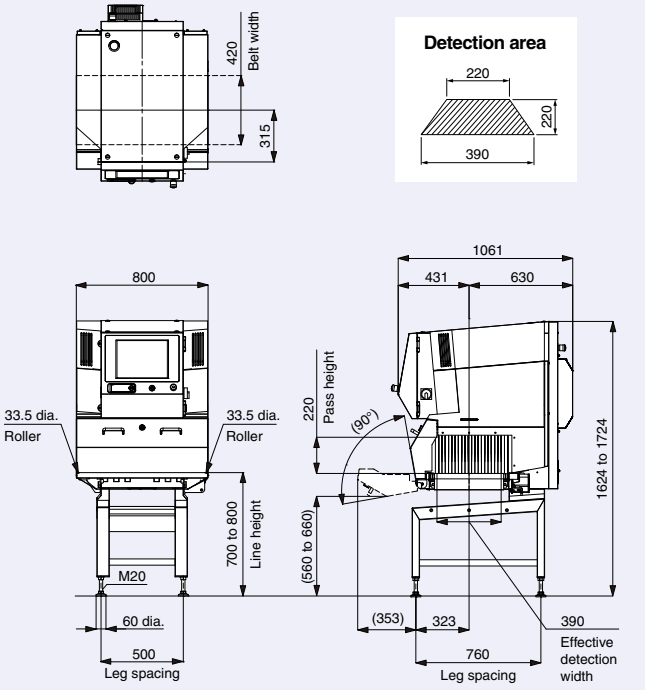


External Dimensions

KXE7522AWHZE



KXE7534AWHZE



Units: mm

Specifications

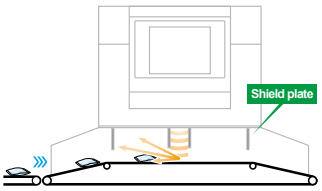
Model	KXE7522AWHZE	KXE7534AWHZE
X-ray output	Tube voltage 25 to 60 kV, tube current 0.4 to 10.0 mA, output 350 W	Tube voltage 25 to 80 kV, tube current 0.4 to 10.0 mA, output 350 W
Safety	X-ray leakage maximum 1.0 µSv/h or less, prevention of x-ray leakage by safety devices	
Display	15-inch color TFT LCD	
Operation method	Touch panel (with touch buzzer)	
Detection area [1, 2]	Maximum width 240 mm, maximum height 120 mm	Maximum width 390 mm, maximum height 220 mm
Preset memory	200	
Belt speed [3] / Maximum product weight [4]	10 to 60 m/min, maximum 5 kg 10 to 40 m/min, maximum 10 kg (optional)	
Power requirements [5]	200 Vac to 240 Vac, single phase, 47 Hz to 63 Hz, 2100 VA or less	
Mass [6]	300 kg	350 kg
Environmental conditions [7]	Temperature: 0°C to 30°C, relative humidity: 30% to 85%, non-condensing	
Protection class	Conveyor: IP66, Other parts: IP65	
Exterior	Stainless steel (SUS304)	

1 : The product size should fall below the detection area.
2 : The entrance and exit may require covers depending on the length of a product.
3 : Variable depending on Product No.
4 : Sum total of product weight on the conveyor.
5 : Allowable power fluctuation range is ±10%.
6 : Mass without option.
7 : The temperature between 0°C and 35°C when an optional rear cooling system is installed.

Major Specifications

XR75 Dual Energy

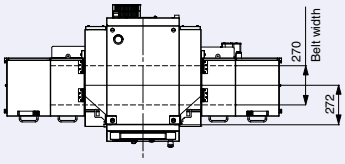
For Lightweight Products and Those in Small Bags

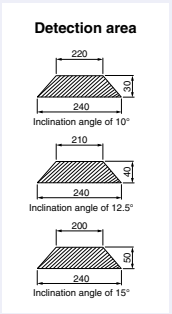


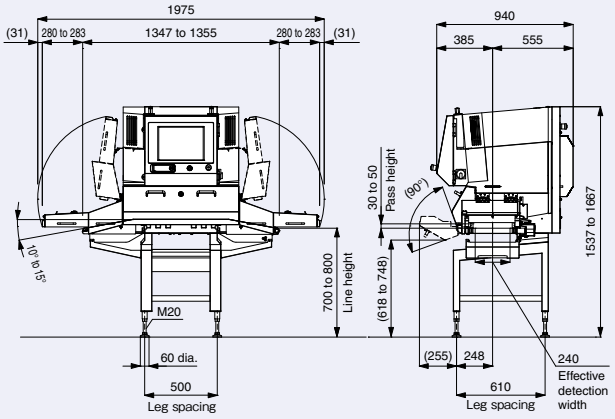


External Dimensions

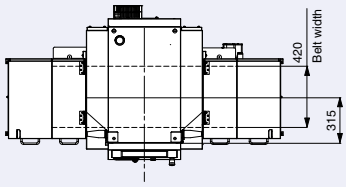
KXE7522CWHZE

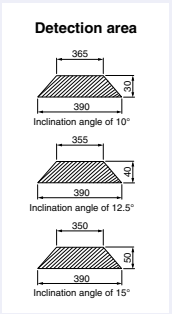


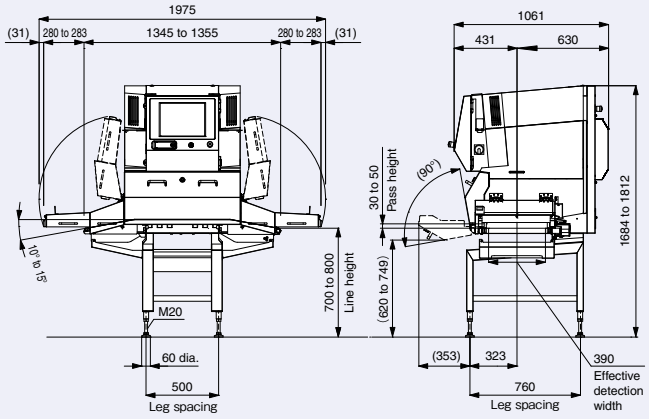




KXE7534CWHZE







Units: mm

Specifications

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X-ray output	Tube voltage 25 to 60 kV, tube current 0.4 to 10.0 mA, output 350 W	
Safety	X-ray leakage maximum 1.0 μSv/h or less, prevention of x-ray leakage by safety devices	
Display	15-inch color TFT LCD	
Operation method	Touch panel (with touch buzzer)	
Detection area [1, 2]	Maximum width 240 mm, maximum height 50 mm	Maximum width 390 mm, maximum height 50 mm
Preset memory	200	
Belt speed [3] / Maximum product weight [4]	10 to 50 m/min, maximum 5 kg	
Power requirements [5]	200 Vac to 240 Vac, single pahse, 47 Hz to 63 Hz, 2100 VA or less	
Mass [6]	335 kg	390 kg
Environmental conditions [7]	Temperature: 0°C to 30°C, relative humidity: 30% to 85%, non-condensing	
Protection class	Conveyor: IP66, Other parts: IP65	
Exterior	Stainless steel (SUS304)	

1 : The product size should fall below the detection area.
2 : The entrance and exit may require covers depending on the length of a product.
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ISO14001, ISO9001 Certified

- Some products shown in this catalog may not be available in your country or region. Contact our sales representatives for details.
- To ensure proper operation, read the Operation Manual before using the machine.
- In addition to daily inspection, a full maintenance inspection should be completed annually.

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CAT.NO. K3262-F-1 2022-10