

# X-Ray Seal Inspection System

General Catalog

The seal inspection system checks  
faulty sealing.

**XrayHawk**

SXS2 series

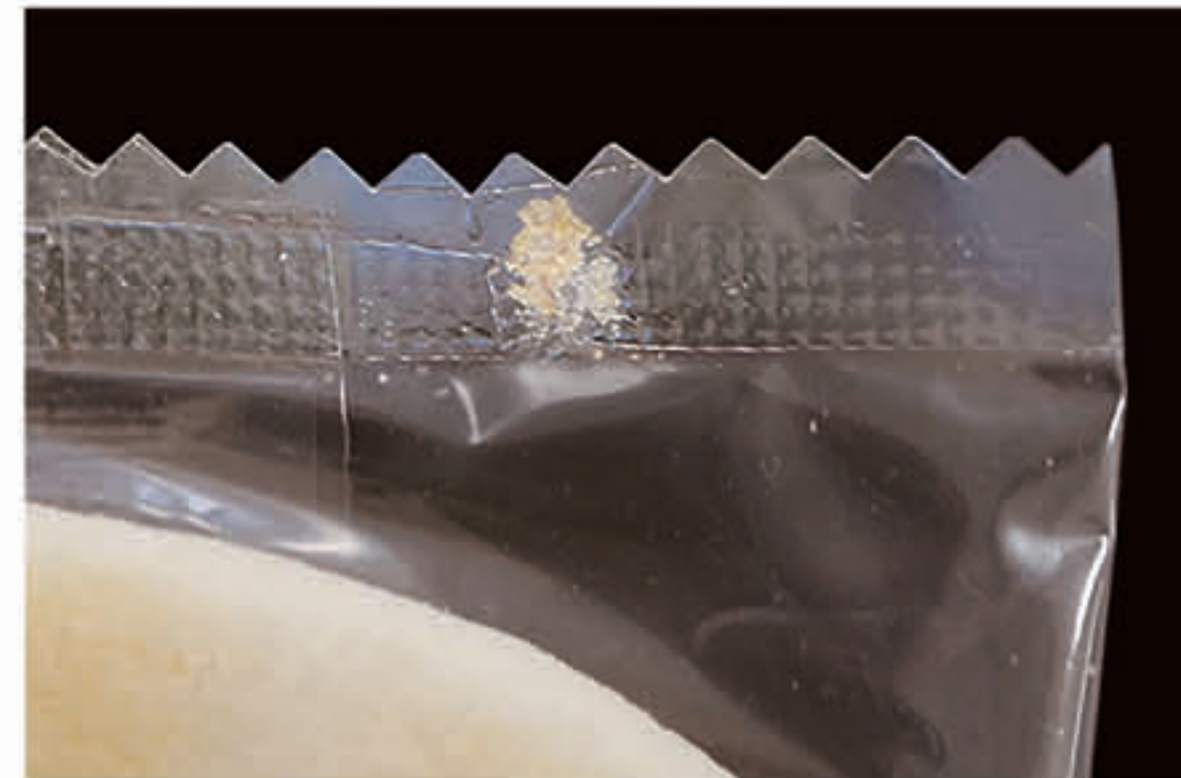
**VisionHawk**

# SEAL INSPECTION SYSTEM

SYSTEM SQUARE INC.

### Inspection for sealing

In the process of packaging the object, the packaging film is crimped by applying heat and pressure to close the opening. Closing by crimping is called sealing, but if a foreign body is jammed, into that part, sealing will be incomplete. The seal inspection system inspects it.



Fragments, broken pieces, or seal faults of the seal parts are detected to reject the product.



The inspection system equipped with the metal detector can detect metal foreign body. The SXS inspection system can detect foreign body, such as metal, bone, glass, and stone.



Relative weight inspection based on X-ray images. The weight is measured using the X-ray.



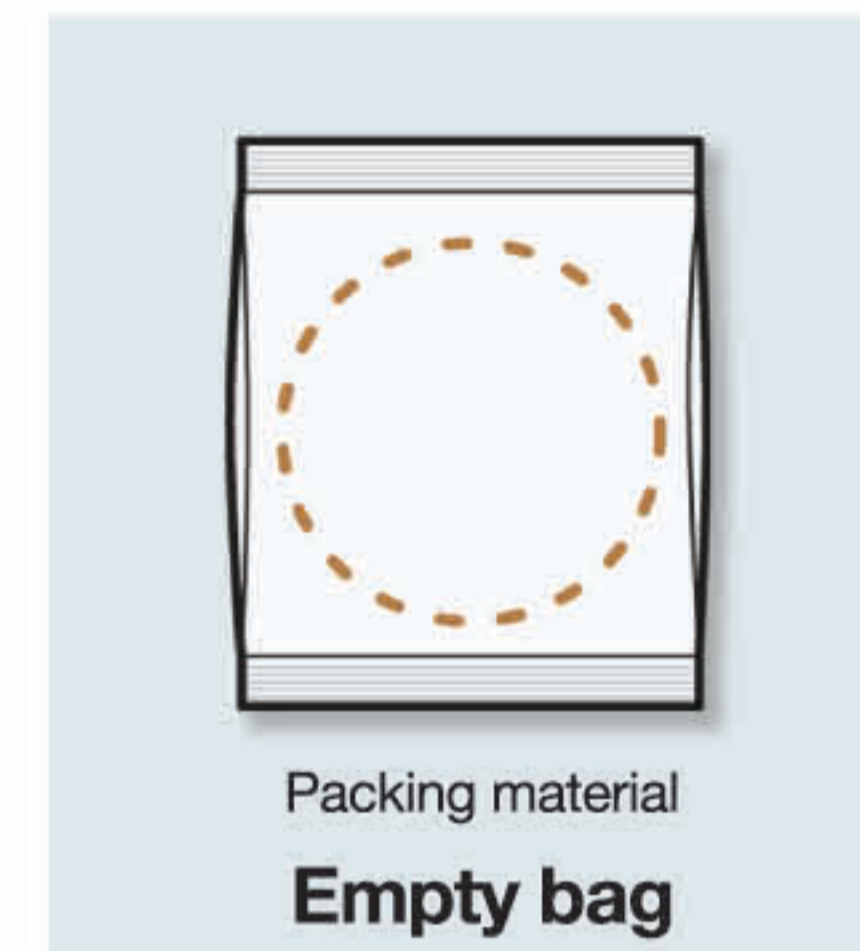
Faults such as product fracture, chipping, or crack from the outer periphery can be detected.



It is possible to detect chipping that has occurred in the corner of the product.



Small holes made during production of rice confectioneries or baked confectioneries can be detected.



Empty bag containing no product can be detected to reject the product.



1-piece pack bag product containing a quantity more than the specified level can be detected to reject the product.



Area, width, and length of the product are measured to detect and reject the product not satisfying the specified size.



Various jamming from liquid to semi-solid in the seal parts can be detected to reject the product.



Connected packages due to package separation failure can be detected to reject the product.



Package with an abnormal size due to packing machine failure can be detected to reject the product.



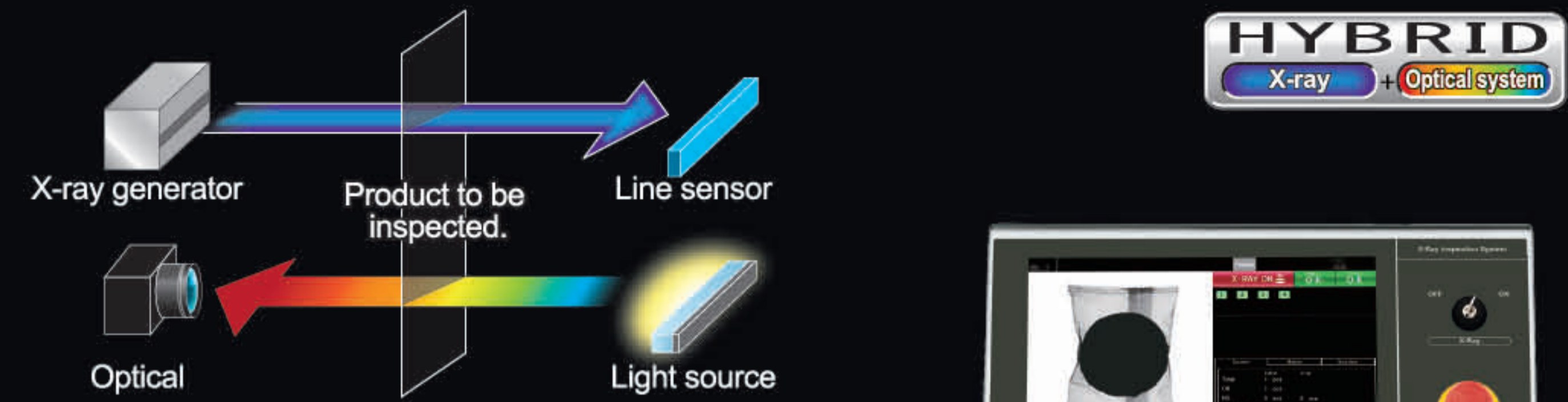
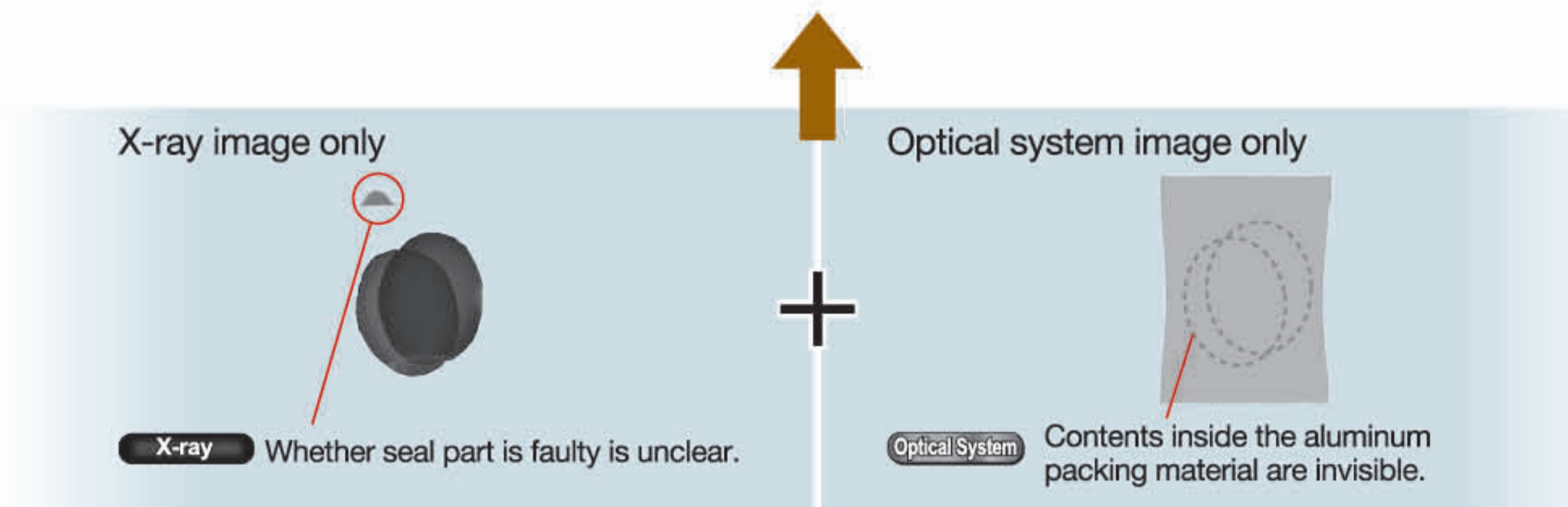
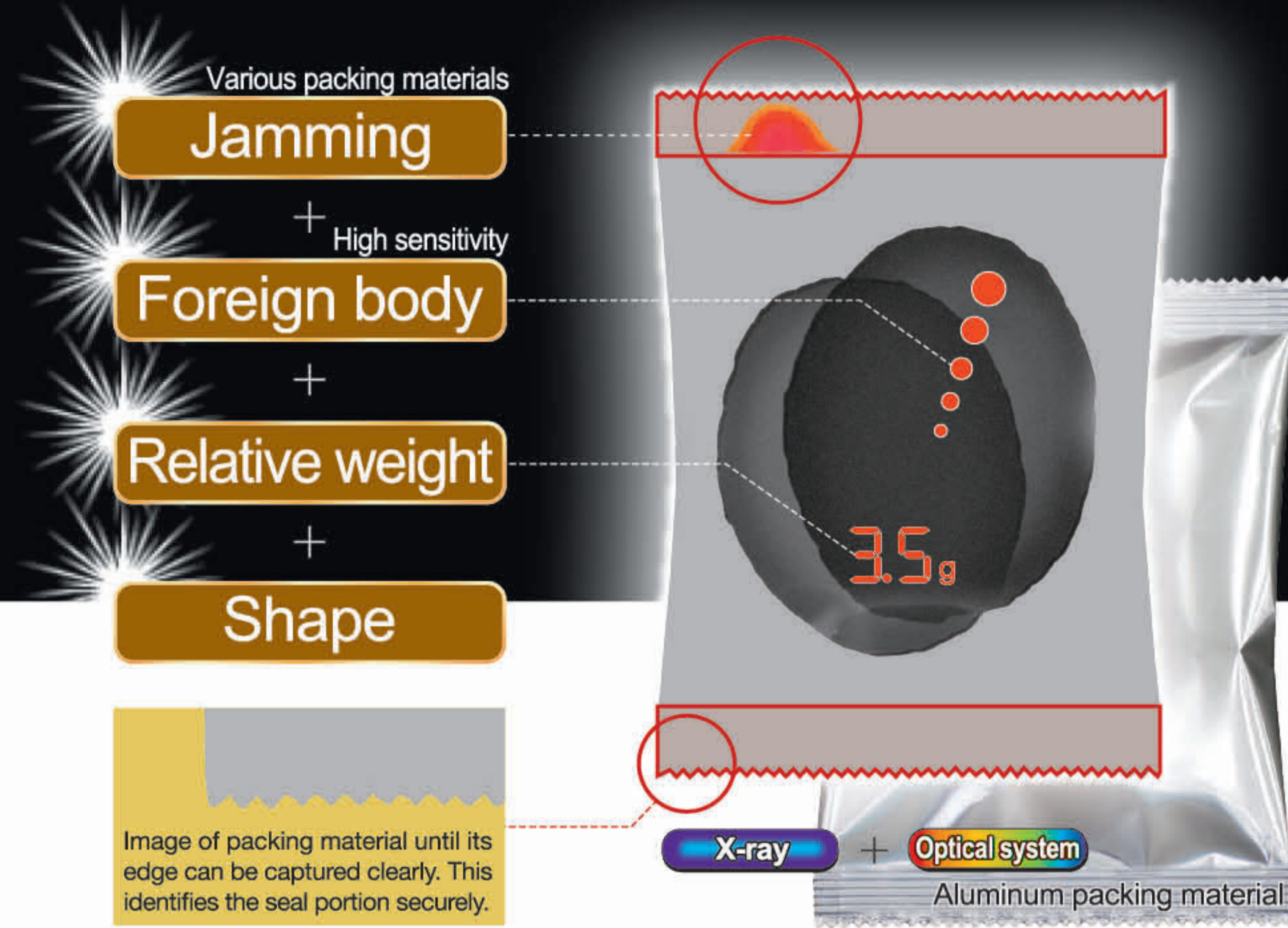
Jamming, seal fault, or package fault that occurs in the seal part around the cup container can be detected to reject the product



Individually packed snacks, packed hams, poutices, packed spices, disposable warmers, and instant noodles, etc.

# X-ray Seal Inspection System

For packaged products SXS2-2154HC1D / SXS2-3474HC1D



- All of jamming, foreign body, relative weight, and shape are inspected with high sensitivity!
- Jamming inspection of various packing materials including aluminum packing material is achieved!
- Packing seal part can be identified securely!

## Differences in sensitivity by packing bag

	Aluminum deposition			Transparent packing material		
	Jamming	Foreign body	Relative weight	Jamming	Foreign body	Relative weight
X-ray seal inspection system (SXS2) X-ray + Optical system	✓	✓	✓	✓	✓	✓
X-ray inspection system (SX2) X-ray	△	✓	✓	×	✓	✓
Seal inspection system (SLS) Optical System	×	×	×	✓	×	×

Thermoforming package



Tray package



Flat pouch package



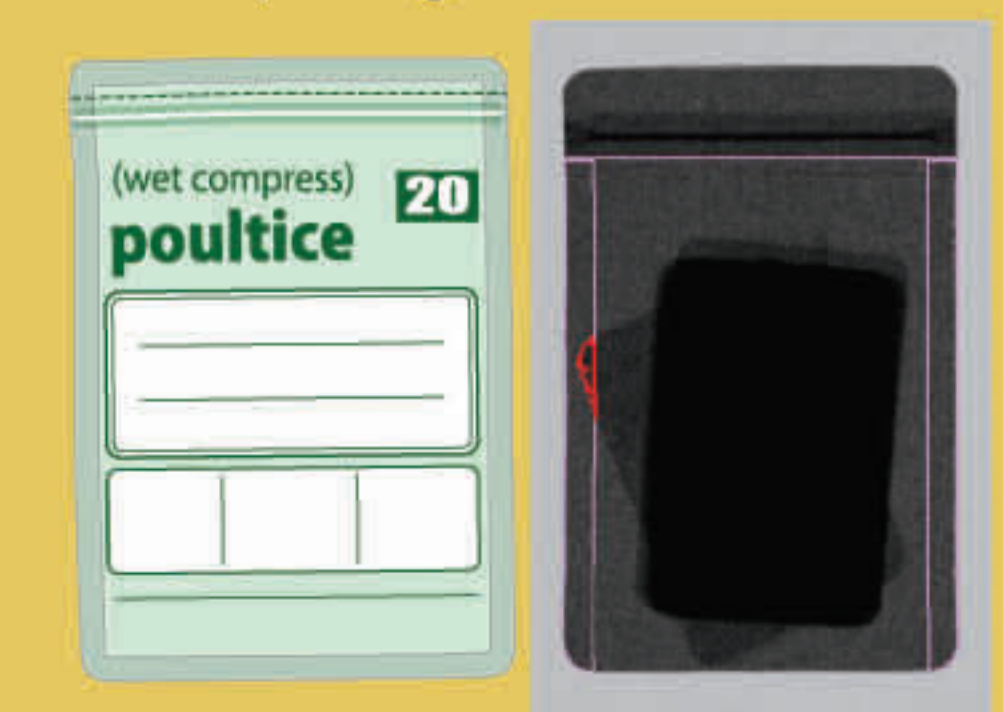
Pillow package



Pillow package

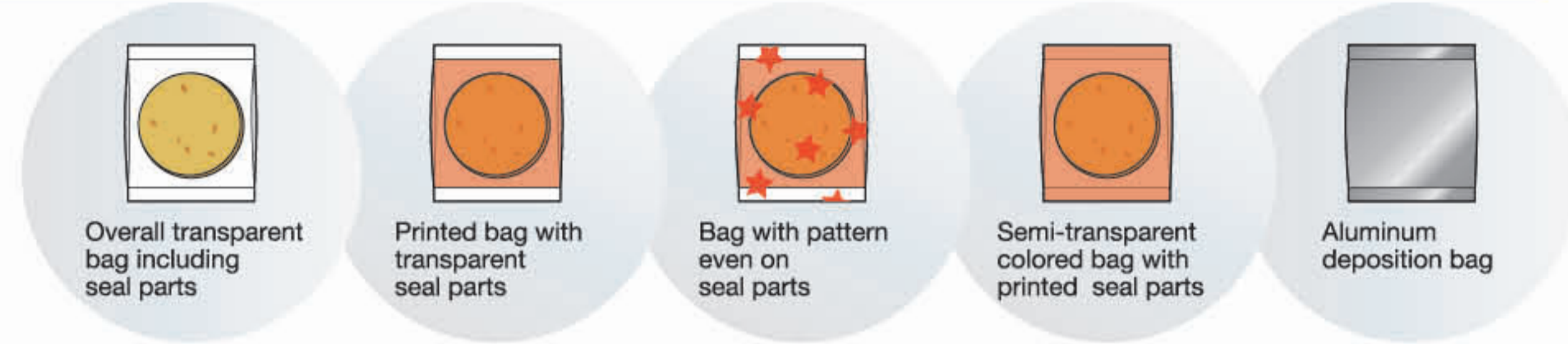


Chuck package



## Packing materials and applicable models

SXS2



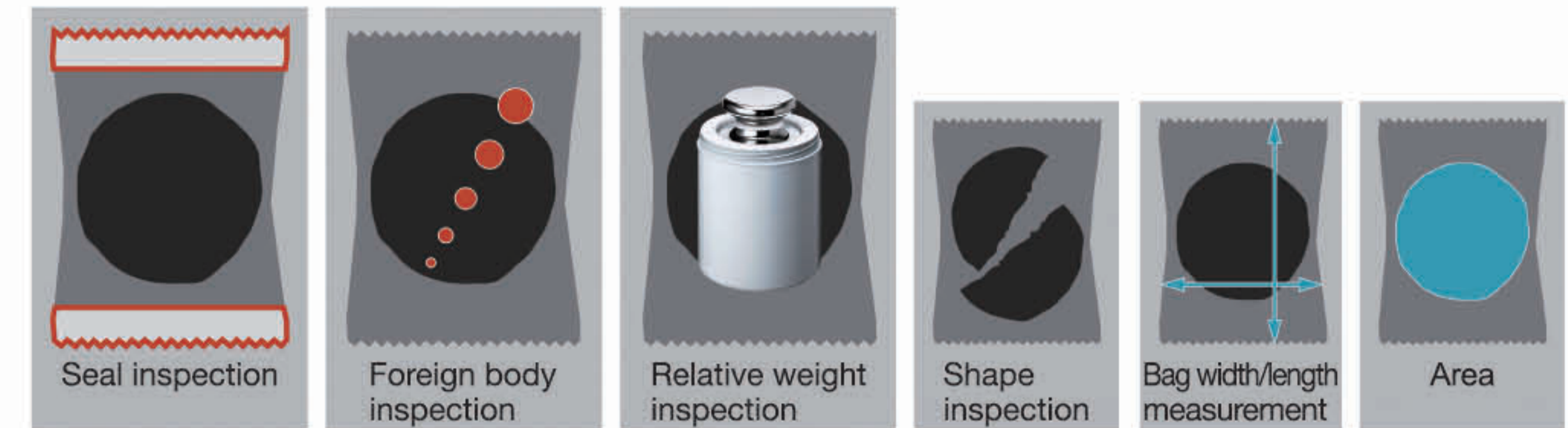
## Comparison of X-ray Seal Inspection System and X-ray Inspection System

X-ray Seal Inspection System detects jamming with high sensitivity. Even aluminum package film and colored design film.

	X-ray Seal Inspection System (SXS2) X-ray + Optical system	X-ray Inspection System (SX2) X-ray
Aluminum package	Sealed part is specified clearly, because the difference between package and background is obvious!	Sealed part is not specified because package is not well showed.
Colored plastic package		

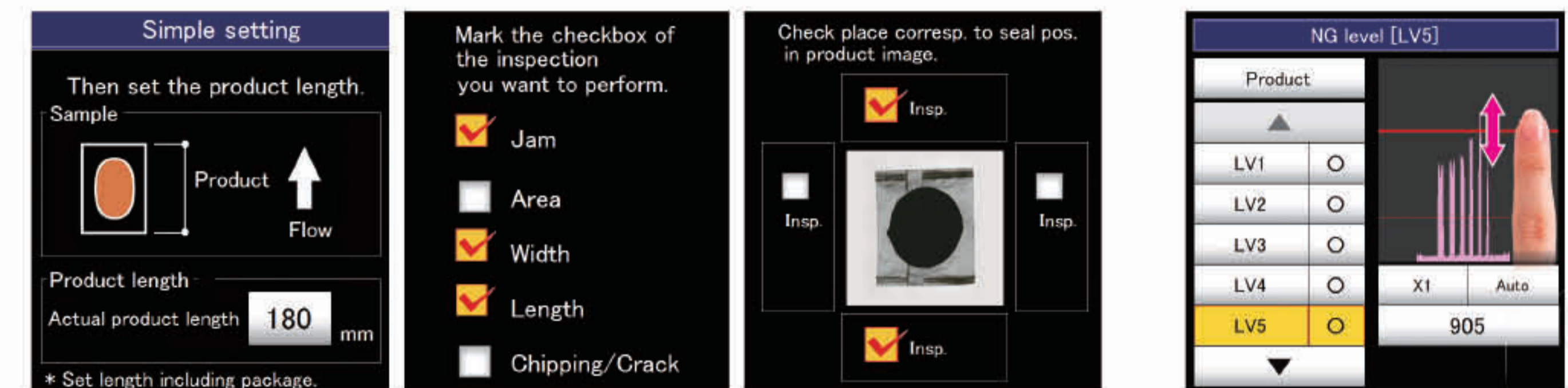
## Various inspection problems are solved.

Unlike the X-ray inspection system, all of jamming, foreign body, and relativeweight can be inspected with a high sensitivity.



## Everyone can set an inspection range easily.

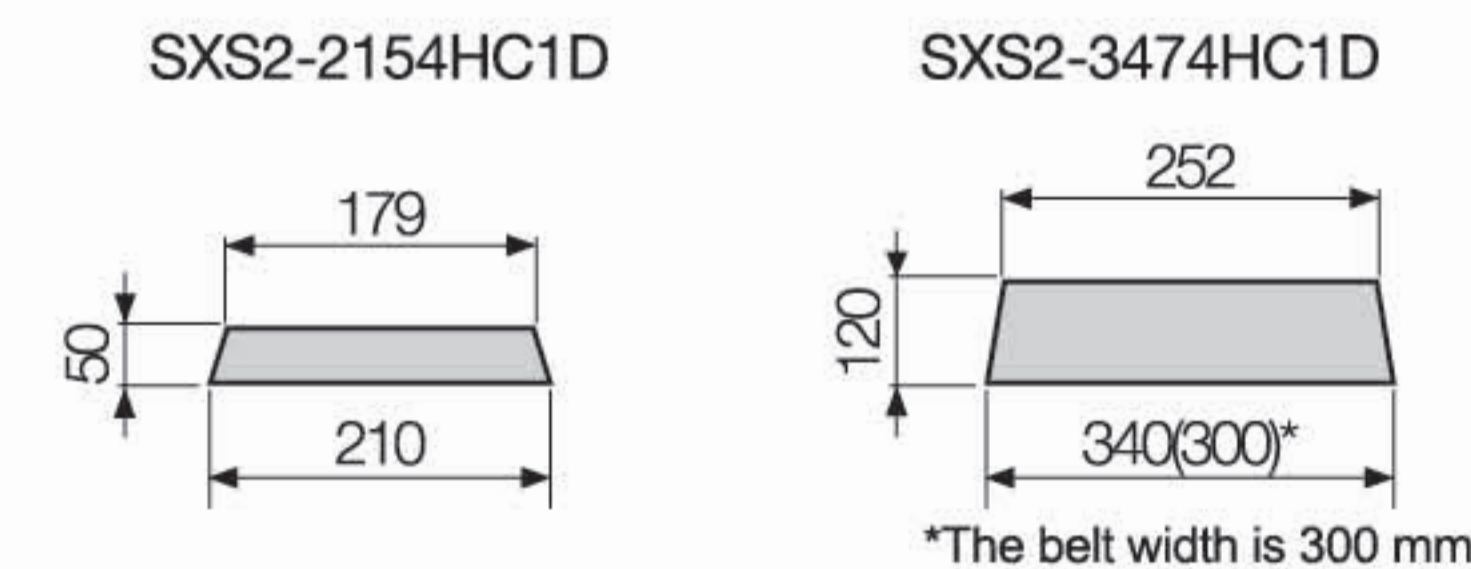
Everyone can easily set an inspection range that was difficult to set by following the system displays.



Inspection range setting screen on the jamming side

Inspection range setting screen on the X-ray side

## Inspectable range



## Example of seal inspection

Example of failed seal



## Clean images and high sensitivity



X-ray seal inspection system

The system obtains clean images without being adversely affected by the transport belt. This ensures less incorrect detection and stable high sensitivity.



Conventional X-ray inspection system

As the transport belt is projected, the images are unclear and the sensitivity becomes poor.

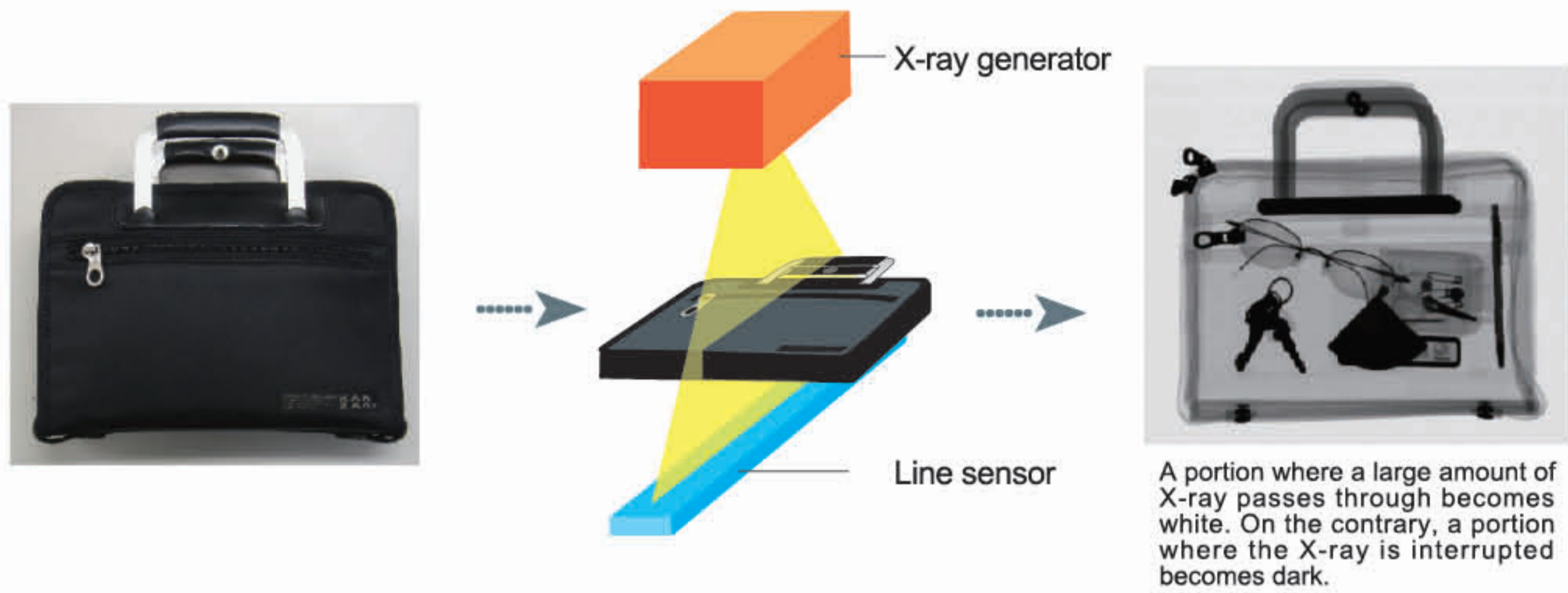
## Inclination correction during transportation ensures a high sensitivity.

Inclination correction during transportation achieves accurate inspection.

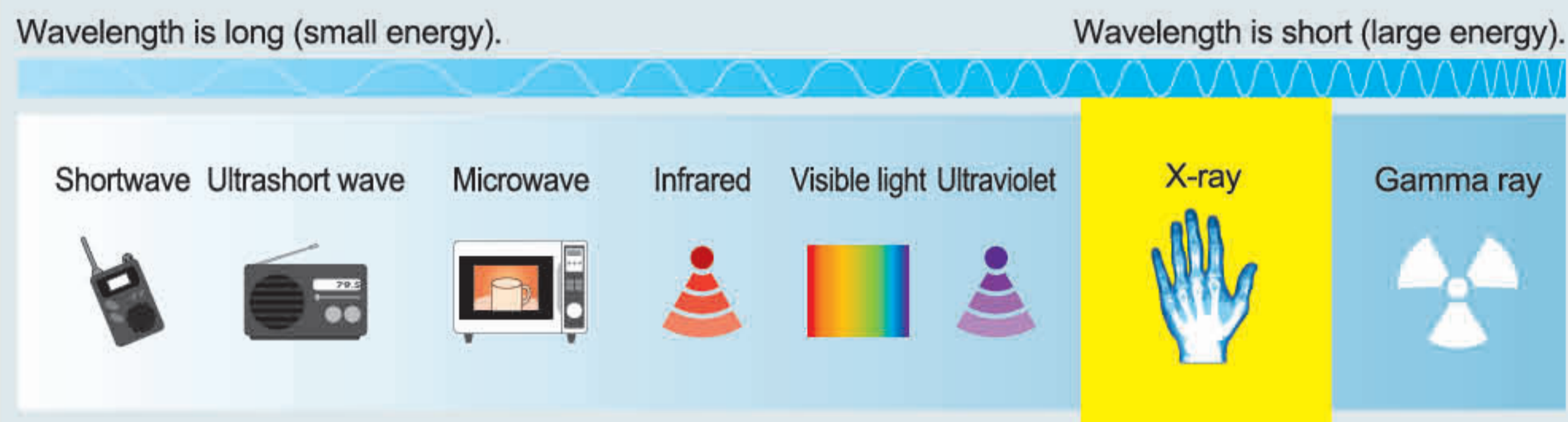


Inclination is corrected.

# About X-ray inspection system

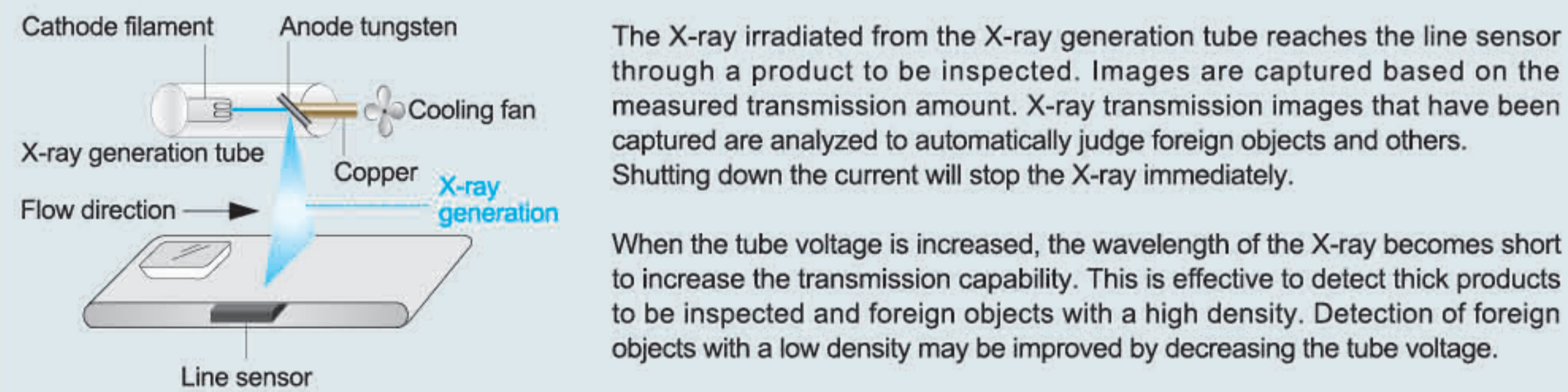


## X-ray belongs to electromagnetic waves

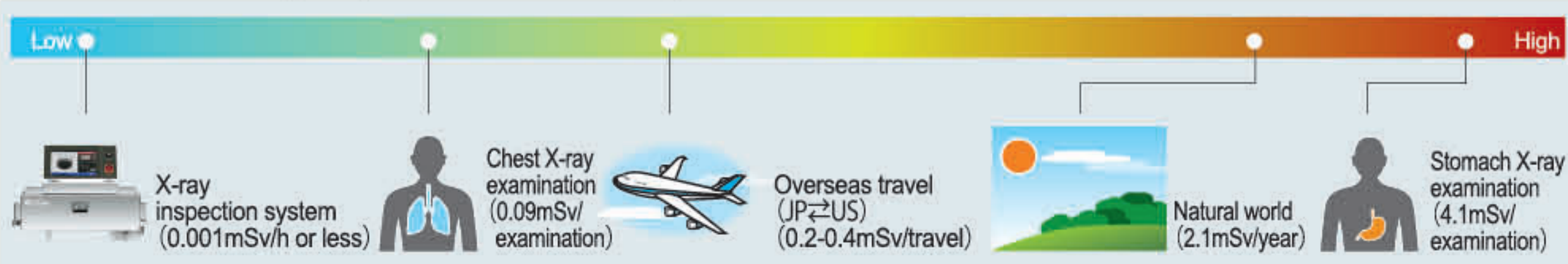


The X-ray inspection system is so designed that the inside of an article can be seen clearly by utilizing the principles that are basically the same as the X-ray radiography. Soft X-ray with small energy among X-rays is used for the X-ray inspection.

## Mechanism of X-ray generation



## Example of X-ray exposure level comparisons

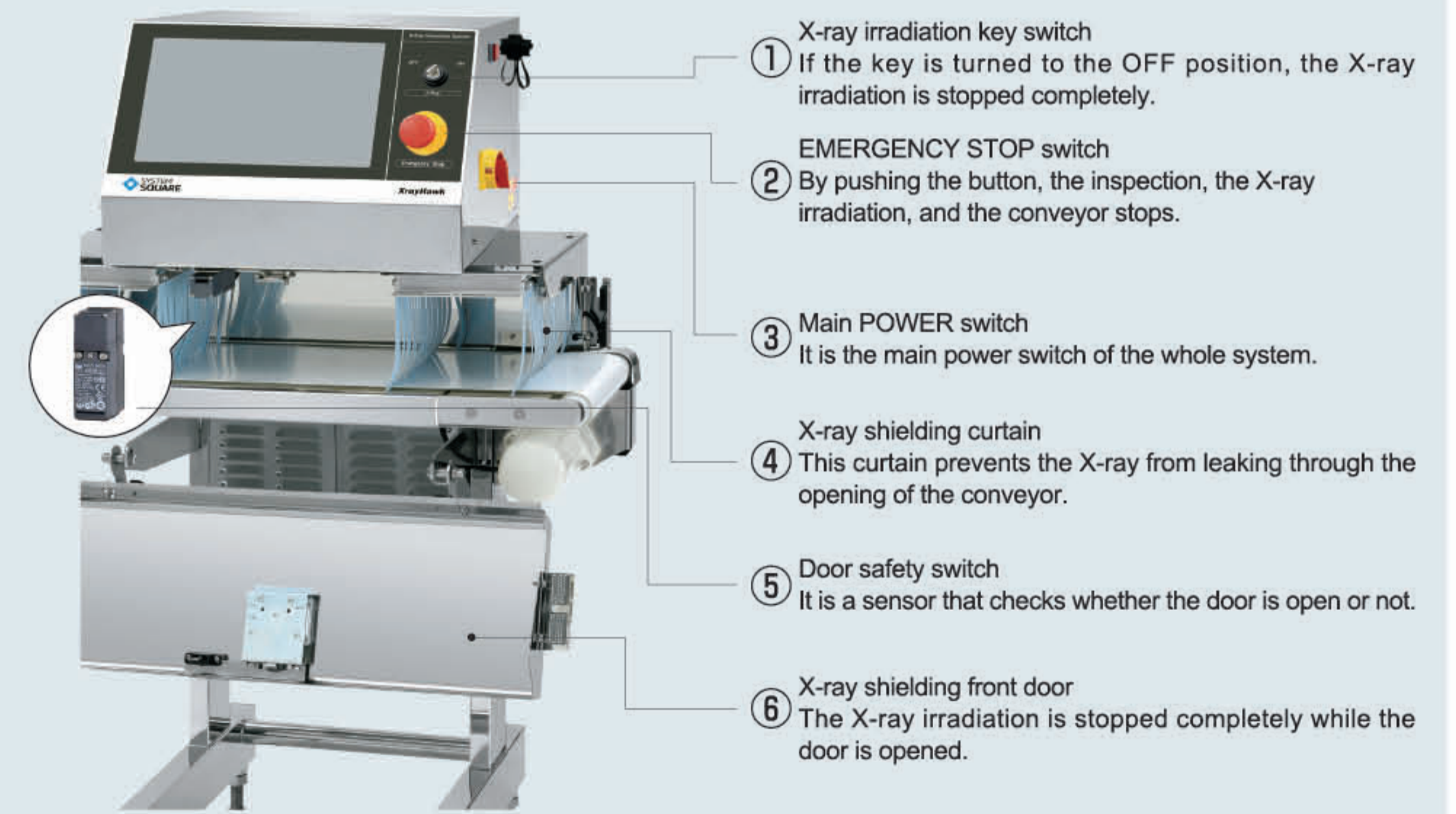


# For assuring safety



## Hazardous work is prevented.

Various safety measures are taken by considering work personnel' s safety. The system can be operated safely even without special qualification about X-ray.



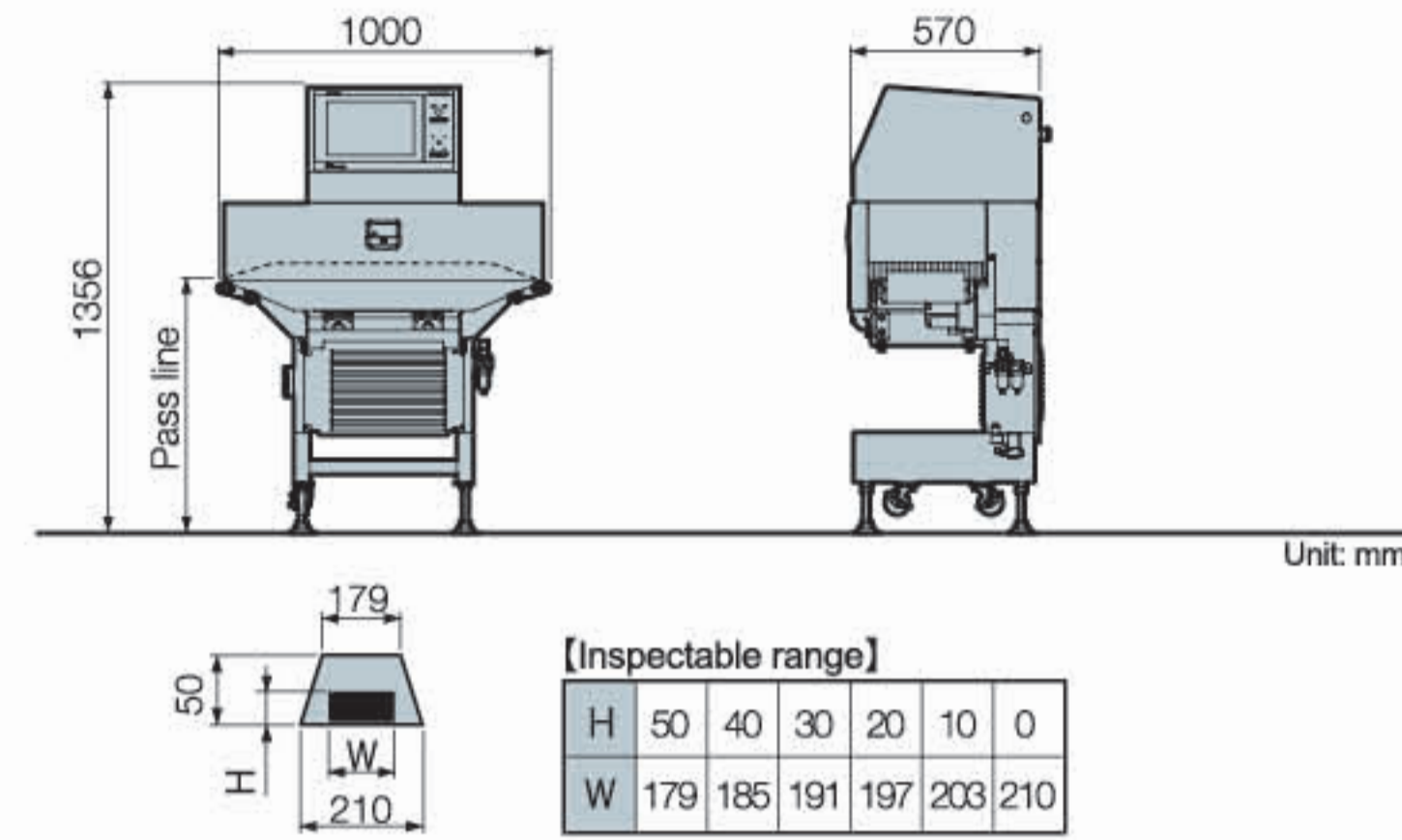
- Sufficient safety measures for work personnel are taken based on " Ministerial Ordinance for Prevention of Hazards from Ionizing Radiation". According to these rules, when the X-ray leak does not exceed 1.3mSv within 3 months, it is not necessary to assign the supervisor in charge of work. The X-ray leak of this system is 1μSv/h or less. Therefore, if the same operator works, 1μSv/h x 16 hrs./day x 6 days/week x 13 weeks (3 months) = 1.25mSv/3 months. This value is within the specified range. The X-ray irradiation amount of this system is 0.1Gy or less based on "Food Sanitation Act" . This level has no problem from a view point of toxicity, nutrition, and microbiology.
- Company that will use the inspection system must submit the plan to the Chief of the Labor Standards Inspection Office in relevant region at least 30 days prior to the installation work of the X-ray inspection system.

- It is necessary to execute warming up X-ray once a month.

- Make sure to ground the earth terminal of the power plug for safety (according to the 3rd class grounding standard). Never connect several cables to one ground point. Or some expensive parts would be in risk at breaking down.

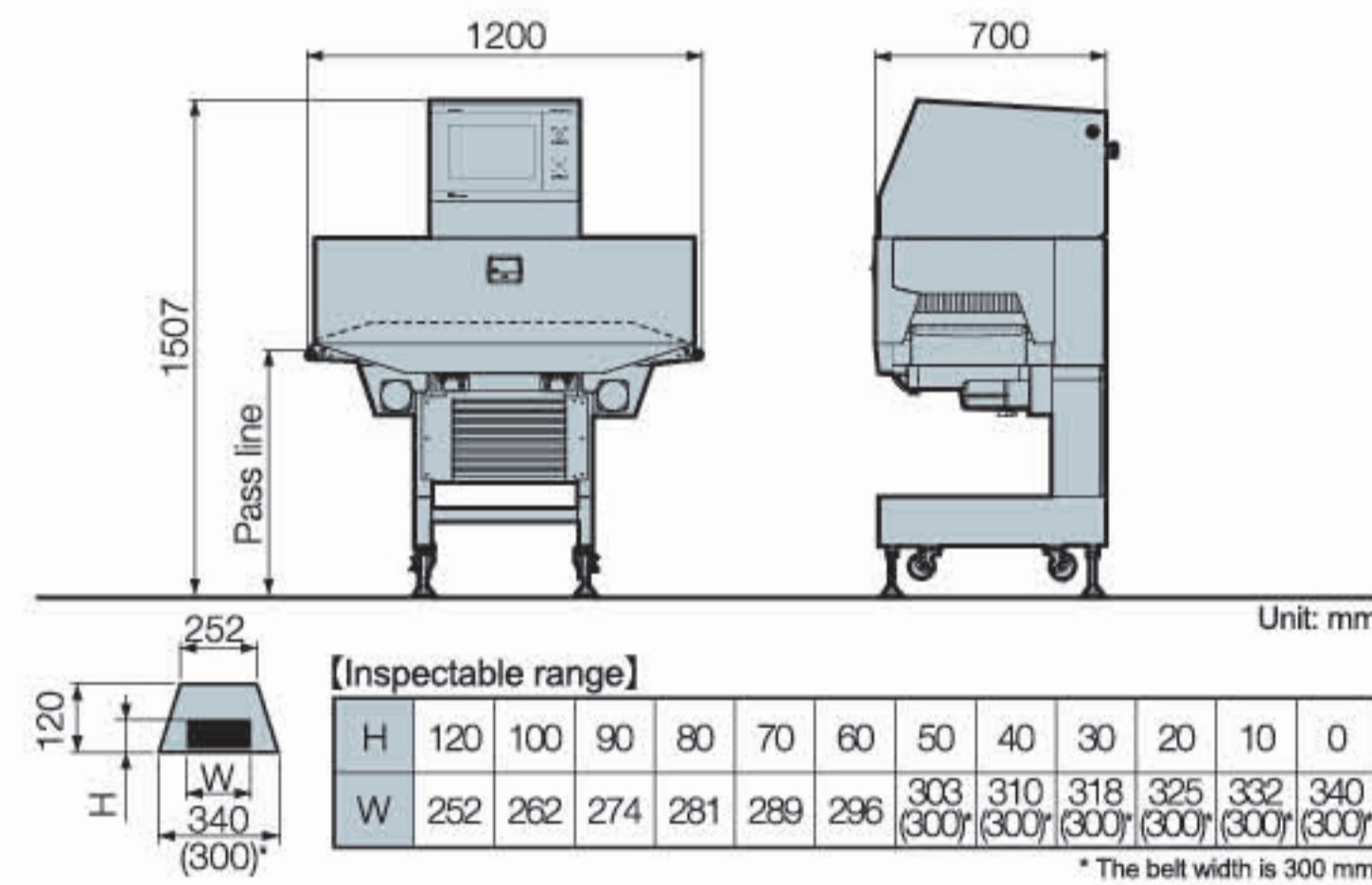
# Dimensional Drawings and Specifications

SXS2-2154HC1D(Trapezoid)

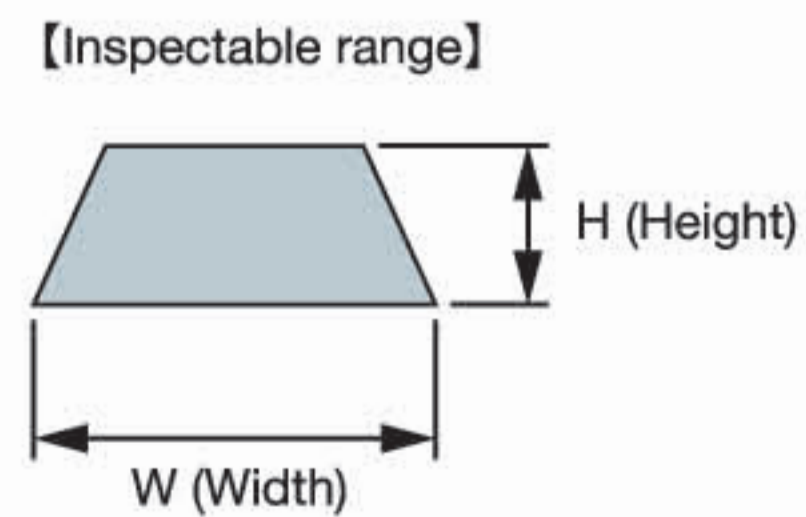
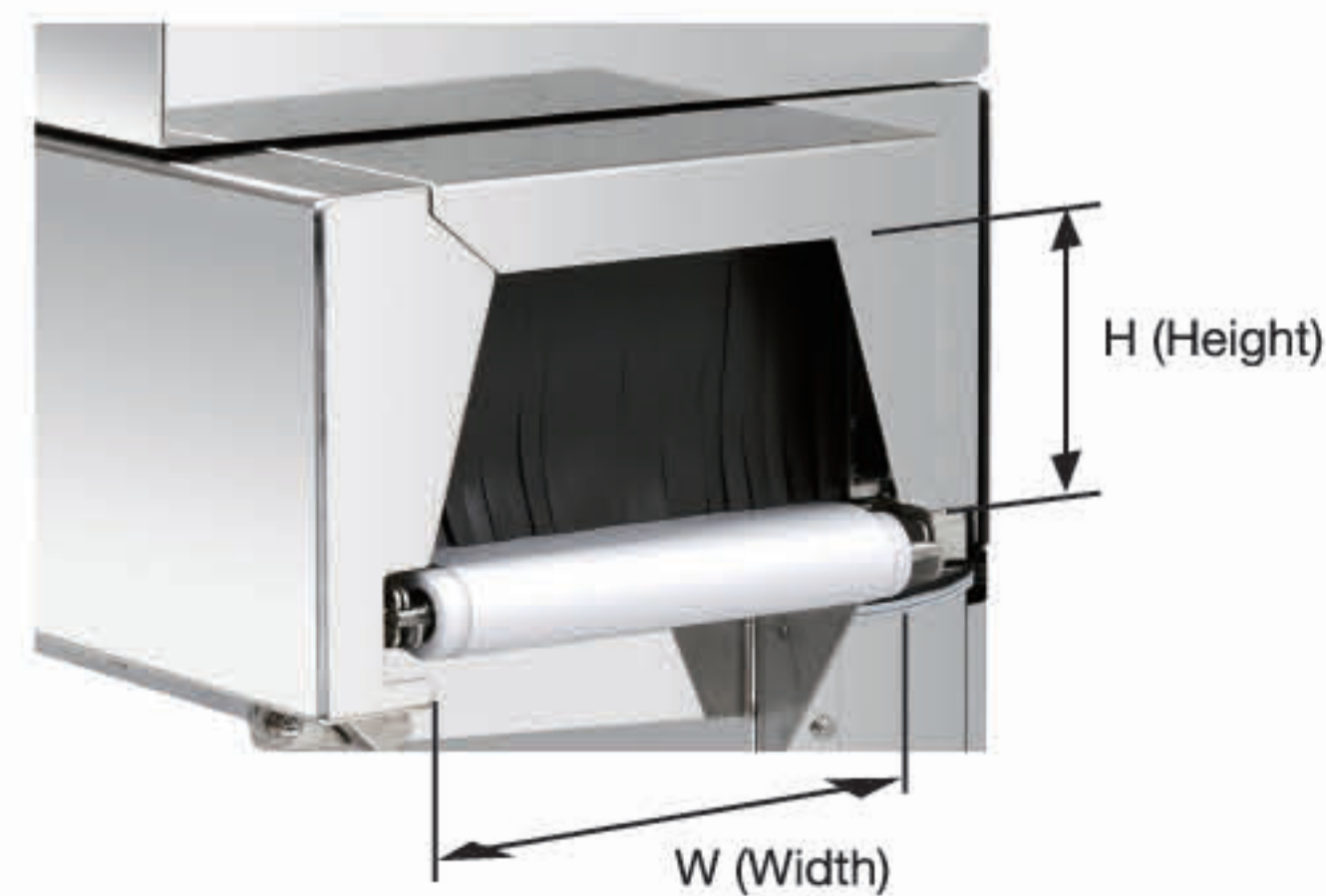


Model	SXS2-2154HC1D (Trapezoid)
Dimension of inspection product <sup>*1</sup>	Maximum passage width 210mm, Maximum passage height 50mm (no curtain type, 25mm)
Weight capacity	1kg <sup>*2</sup>
Conveyor speed	20-60m/min <sup>*3</sup>
Belt width	240mm
Detectable material	Iron or stainless-steel ball (Φ0.3mm), stone, glass, hard bone, high density plastic, etc. <sup>*4</sup>
Display unit	15.6 inches-wide TFT color LCD (with touch panel)
Structure	Main unit/Base: All stainless-steel (SUS304)
Pass line	750±50mm
Max. X-ray output	Tube voltage: 50kV, Tube current: 5.0mA (Max: 150W)
Operating environment	Temperature: 0 to 35°C, Humidity: 30 to 85%, No dew condensation allowed. (It is necessary to clean the filter periodically.)
Weight	220kg
Main power supply	AC100V±10%/AC200V±10%, 1.0kVA, 50/60Hz <sup>*5</sup>

SXS2-3474HC1D(Trapezoid)



Model	SXS2-3474HC1D (Trapezoid)
Dimension of inspection product <sup>*1</sup>	Maximum passage width 340mm, Maximum passage height 120mm (no curtain type, 40mm)
Weight capacity	1kg <sup>*2</sup>
Conveyor speed	20-60m/min <sup>*3</sup>
Belt width	300mm
Detectable material	Iron or stainless-steel ball (Φ0.3mm), stone, glass, hard bone, high density plastic, etc. <sup>*4</sup>
Display unit	15.6 inches-wide TFT color LCD (with touch panel)
Structure	Main unit/Base: All stainless-steel (SUS304)
Pass line	750±50mm
Max. X-ray output	Tube voltage: 50kV, Tube current: 8.0mA (Max: 300W)
Operating environment	Temperature: 0 to 35°C, Humidity: 30 to 85%, No dew condensation allowed. (It is necessary to clean the filter periodically.)
Weight	320kg
Main power supply	AC100V±10%/AC200V±10%, 1.5kVA, 50/60Hz <sup>*5</sup>



# Sorting machines

Air jet system



Wide type

Narrow type

Model	AR
Sorting direction	Two-way
Weight capacity	Max. 0.3kg <sup>*</sup>
Air source	0.5-0.85Mpa
Air consumption	16L/time(ANR)
Weight	3kg

Dropout system(belt)



Model	DV250W	DV400BW	DV540BW
Sorting direction	Two-way		
Weight capacity	Max. 5kg <sup>*</sup>		
Air source	0.5-0.7Mpa		
Air consumption	1.0L/time(ANR)		
Weight	22kg	28kg	37kg
A	250mm	400mm	540mm
B	350mm	500mm	730mm
C	350mm	500mm	650mm
D	750±50mm		
E	25°	30°	24.1°
F	133mm	230mm	253mm

Flipper system



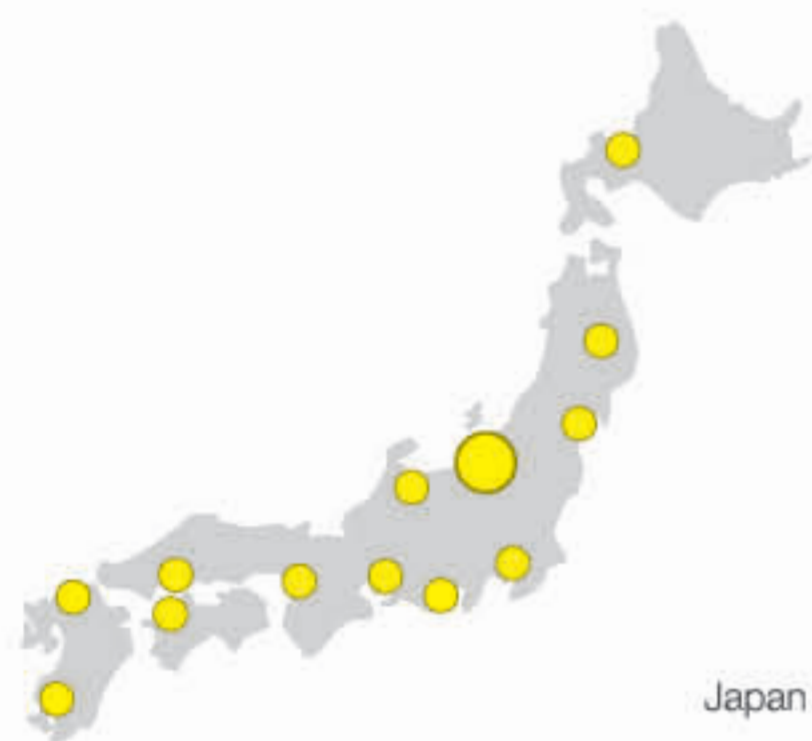
Model	FL220W	FL350D/W
Sorting direction	Three-way	
Weight capacity	Max. 3kg <sup>*</sup>	
Air source	0.5-0.7Mpa	
Air consumption	0.4L/time(ANR)	
Weight	37kg	70kg
A	220mm	350mm
B	400mm	550mm
C	700mm	800mm
D	750±50mm	

<sup>\*1</sup> For details, see the drawing of the Inspectable range. <sup>\*2</sup> For other weight levels, contact System Square. <sup>\*3</sup> For other transport speed models, contact System Square. <sup>\*4</sup> The detection sensitivity depends on the product and/or installed environment. <sup>\*5</sup> Power consumption is different when cooling unit is equipped.  
<sup>\*</sup> The cover to prevent the X-ray leak may be required at the inlet and outlet according to the length of inspection product.  
<sup>\*</sup> The detection sensitivity to be used actually may vary depending on the physical properties (contents and shape, etc.) of inspection product and/or the operating environment.

<sup>\*</sup>Sorting capacity depends on product that is let passing through.



Agents



Japan office

For more information, contact our nearest dealer.  
The contents of the specifications are subject to change without  
prior notice due to continual improvement.

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