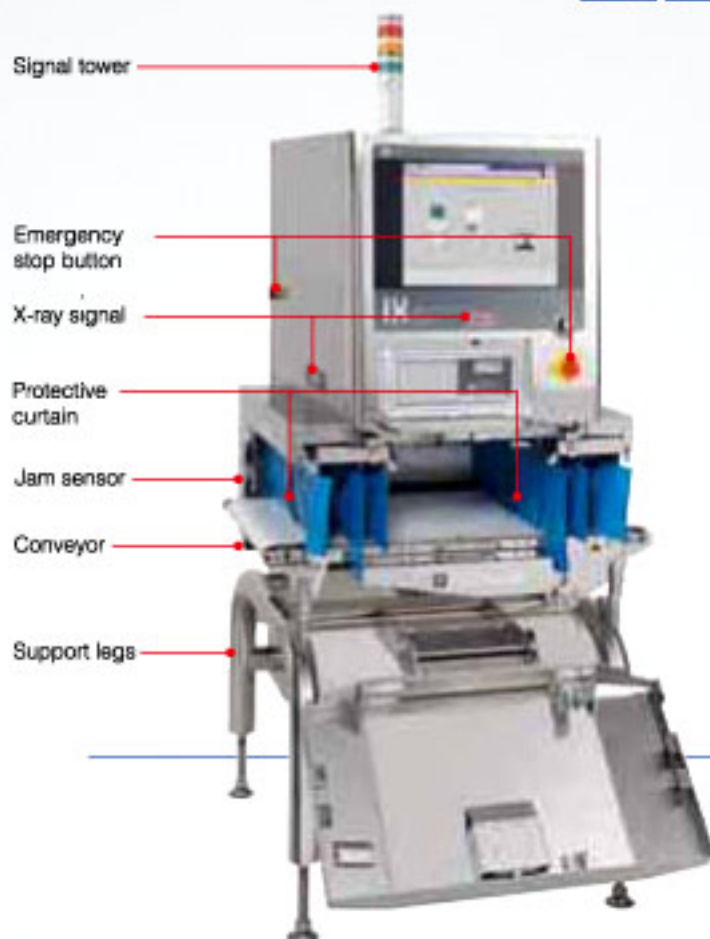


Ishida X-ray inspection system

## IX Series



# ISHIDA IX Series

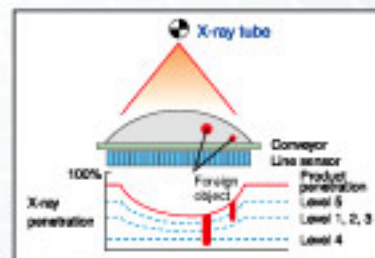
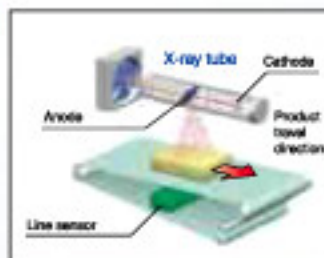


Ishida's IX-GA Series X-ray System offers the highest level of performance for every production process, delivering effective product quality inspection from raw material handling to packaging and casing.

In addition to detecting foreign substances such as metal, glass, bone, shell, plastic, hard rubber and pebbles, IX-GA also inspects for product defects such as cracks, lumps, voids and improper weights.

## Principle of X-ray Inspection

X-rays pass through product on the conveyor. A line sensor receives the transmitted X-rays and converts them to electric signals. An image processing system generates X-ray transparent images from the signals and detects contamination and product defects with Ishida's exclusive 5-level processing software.



## Safety and Security For Operators

- X-ray emissions are under 1 micro Sv/h (0.1 milliroentgen/h) in all parts of the system.
- X-ray exposure only takes place within the inspection tunnel.
- A high-visibility signal light indicates when exposure is in progress.
- Safety interlock stops X-ray output when the tunnel's integrity is compromised (e.g. curtain or conveyor is out of position, or a portion of operator's body is inserted).

## For inspected products

- X-ray absorption of the inspected product is well below 0.1 Gy.
- At start-up of production, the rejector automatically rejects all products regardless of inspection result in order to prevent jammed product in the inspection tunnel.



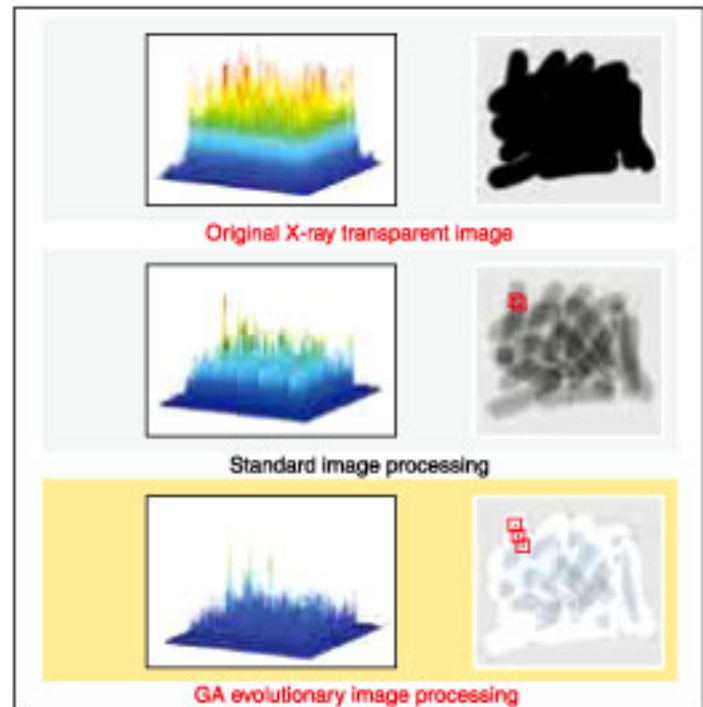
## Precise and reliable inspection

With Ishida's unique technology, IX-GA achieves highly effective inspection for foreign matter and defective product.

### Ishida GA (Genetic Algorithm) evolutionary image processing

Conventionally, customers had to spend valuable cost and lead-time on tailor-made software when they needed to detect specific foreign objects or inspect product. With Ishida's original GA (Genetic Algorithm) evolutionary image processing, the operator can automatically generate the optimal sensitivity setting.

Sausage



### Weight analysis

The IX-GA weight analysis function estimates the product weight from a transparent X-ray image. By simply passing a non-defective product through the system, IX-GA automatically calibrates the optimal settings.

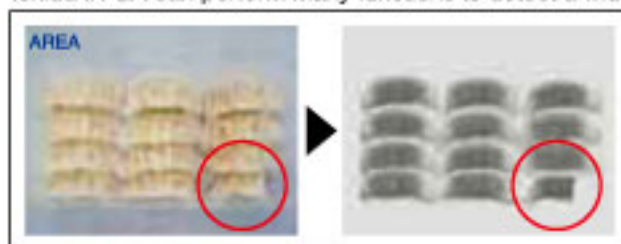
Calculating the volume of a product according to the brightness of a transparent X-ray image

- ➔ Multiplying the calculated volume by the density
- ➔ Estimated weight

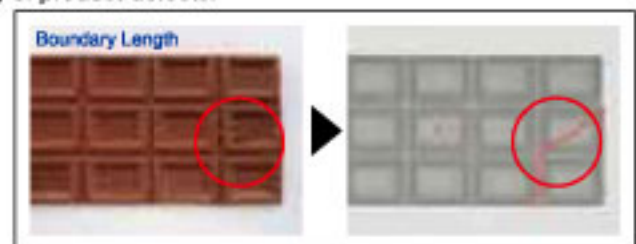


### Defect inspection

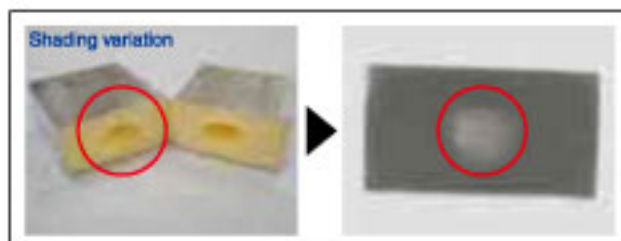
Ishida IX-GA can perform many functions to detect a wide variety of product defects.



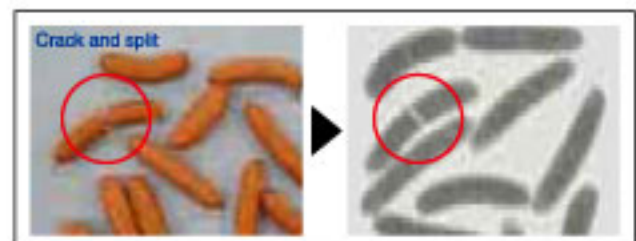
Chinese dumplings in plastic tray



Chocolate



Butter



Sausage

## User-friendly operation

The interactive IX-GA operator menu is easy to read and use, minimizing training costs and time. Basic functions are performed without stopping production to minimize downtime.

### Rapid warm-up (90 seconds)

The system boots in less than 90 seconds after turning on the power key.

### Three-touch preset switching

Product presets can be changed by a three-touch operation without stopping production. By pressing "Preset", "Name" and "Set" keys, you can recall the preset quickly.

1 Preset

2 Name

3 Set



### Automatic, time-saving set-up

With just two or three passes of product through the system, IX-GA automatically determines the optimal inspection settings.

### No routine recalibration required

With Ishida's distinctive software, IX-GA does not need to stop production for recalibration.

## Inspection data management

All inspection results and operation logs are automatically stored with a time stamp, providing a reliable control point for production quality records.

### Storage and share

NG images, operation history, total data and all other data stored can be saved to a CF card even during operation. All data can be opened with standard PC applications.

### Networking

IX-GA has an Ethernet option to connect the unit to the factory's LAN network.



## High reliability

For 24-hour non-stop operation, Ishida IX-GA features rugged construction and useful monitoring functions to reduce downtime.

### Line sensor output monitoring

An operator can easily check X-ray output on the display to prevent a sudden machine error.

### Closed construction

Ishida IX-GA has eliminated intake/outlet ducts for complete closure, and cooling of the internal environment of the system prevents damage from condensation or dust even in harsh production environments.



## Sanitary construction

Ishida IX-GA is designed to facilitate cleaning and improve efficiency by simplifying product changeover.

### No tools required for conveyor removal

The conveyor unit can be removed and installed without tools.



Remove protective curtain



Remove belt



Pull out conveyor frame



Waterproof test for inspection chamber

### Washdown construction

The conveyor chamber conforms to IP66, suitable for high-pressure washing. The overall system conforms to IP65.



Waterproof test for display (IP65)



# Applications

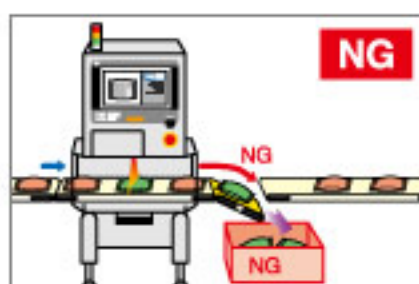
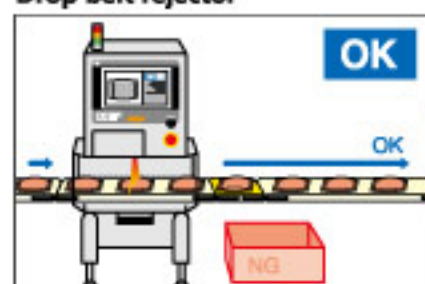
## Rejectors

### Arm rejector



Arm rejector is a general-purpose system, appropriate for thick products.

### Drop belt rejector



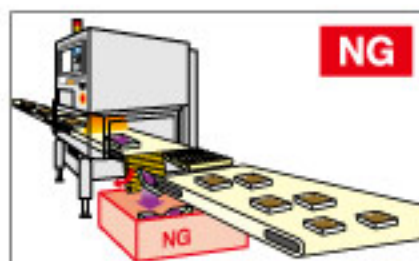
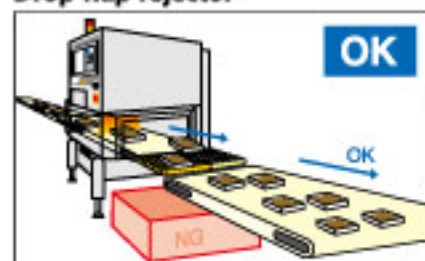
Drop belt rejector sorts products with a vertically movable belt. It is suitable for rejecting thin products.

### Push plate rejector



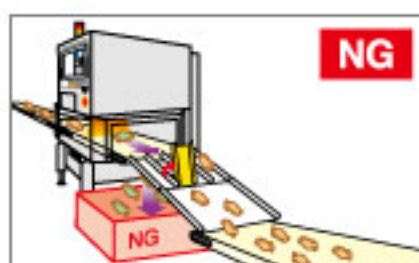
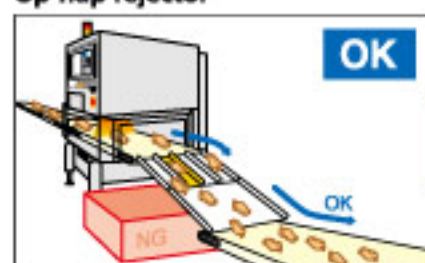
Push plate rejector sorts products on a conveyor using an air-driven device. It is suitable for rejecting heavy items such as cardboard and kraft paper products.

### Drop flap rejector



Drop flap rejector has a vertically movable flap that moves downward to sort products. It is appropriate for sorting light and non-sticky products.

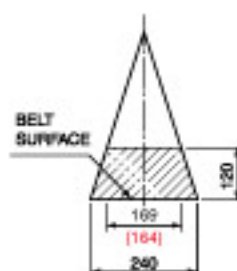
### Up flap rejector



Up flap rejector has a vertically movable flap that allows product to drop below it. It is suitable for separating small bulk items.

# IX-GA-2475-D IX-GA-S-2462-D

Small-size X-ray inspection system



★IX-GA-S-2462-D

## Inspection area

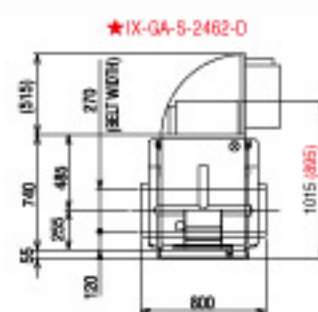
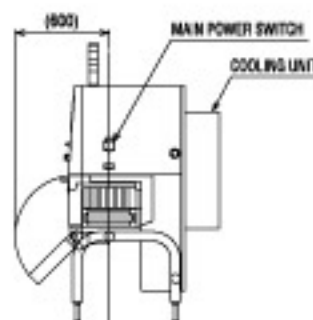
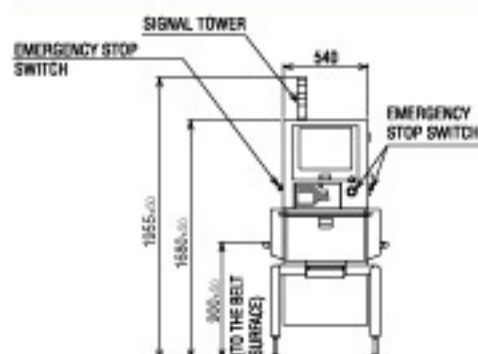
The figures above show the permissible inspection range.  
Portions of the product which are not within the shaded area are not irradiated.

## Product size

Height	Width	
	2475-D	2462-D
0 mm	240 mm	240 mm
10 mm	234 mm	233 mm
20 mm	228 mm	227 mm
30 mm	222 mm	221 mm
40 mm	216 mm	214 mm
50 mm	210 mm	208 mm
60 mm	204 mm	202 mm
70 mm	198 mm	196 mm
80 mm	192 mm	189 mm
90 mm	186 mm	183 mm
100 mm	180 mm	177 mm
110 mm	175 mm	170 mm
120 mm	169 mm	164 mm



## External dimensions (IX-GA-2475-D)



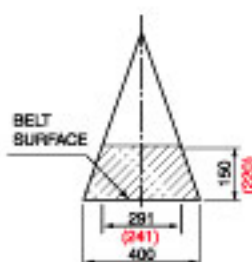
Unit: mm

## Specifications

Model		IX-GA-2475-D	IX-GA-S-2462-D
X-ray tube voltage		25/ 30/ 35/ 40/ 45/ 50/ 55/ 60/ 65/ 70/ 75kV	30/ 35/ 40/ 45/ 50kV
X-ray tube current		1 - 8.0 mA	1.0 mA
X-ray output		MAX 300 W	MAX 50 W
X-ray protection		Protective curtain (rapidly detachable)	
X-ray emissions		1 μSwh or less, including conveyor entrance/exit	
Product configuration		With or without packaging	
Inspection chamber	Length	20 - 450 mm (intermittent flow)	
	Width	Up to 240 mm	
	Height	Up to 120 mm	
Conveyor	Material	FDA approval type urethane belt (white)	
	Dimensions	800 mm (L) × 270 mm (W) * + 100 mm at follower side is available as an option	800 mm (L) × 270 mm (W)
	Speed	10 - 60 m/min. * up to 90 m/min is available as an option	10 - 60 m/min.
	Conveying weight	MAX 2 kg (over entire length) * Max 4 kg is available as option, but at 10 - 30 m/min belt speed	MAX 2 kg (over entire length)
Cooling method		Hermetic air cooling	Heat sink cooling
Power supply		AC200/ 208/ 220/ 230/ 240V, 50/60Hz Voltage variation: ±10%	
Protective construction		IP65 (Conveyor unit: IP66)	IP54 (Conveyor unit: IP66) * IP65 with optional air cooler
Operation temperature		0°C - 40°C ambient temperature (with no freezing or rapid temperature shifts)	0°C - 32°C ambient temperature (with no freezing or rapid temperature shifts)
Operation humidity		30 - 85%RH (with no condensation)	

# IX-GA-4075-D IX-GA-4075-AD

Medium-size X-ray inspection system



★ IX-GA-4075-AD

## Inspection area

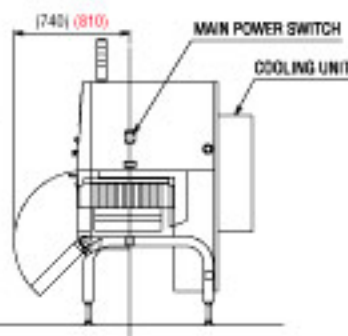
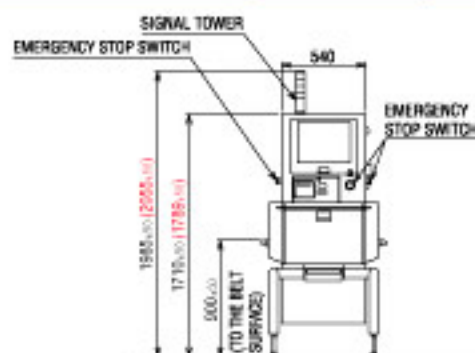
The figures above show the permissible inspection range.  
Portions of the product which are not within the shaded area are not irradiated.

## Product size

Height	Width
0 mm	400 mm
10 mm	392 mm
20 mm	385 mm
30 mm	378 mm
40 mm	371 mm
50 mm	364 mm
60 mm	356 mm
70 mm	349 mm
80 mm	342 mm
90 mm	335 mm
100 mm	327 mm
110 mm	320 mm
120 mm	313 mm
130 mm	306 mm
140 mm	299 mm
150 mm	291 mm
160 mm	284 mm
170 mm	277 mm
180 mm	270 mm
190 mm	263 mm
200 mm	255 mm
210 mm	248 mm
220 mm	241 mm

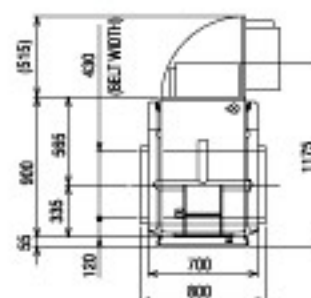


## External dimensions (IX-GA-4075-D)



★ IX-GA-4075-AD

Unit: mm



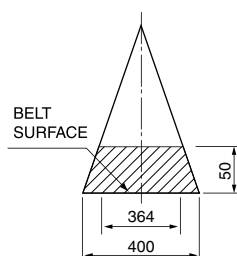
## Specifications

Model	IX-GA-4075-D	IX-GA-4075-AD
X-ray tube voltage	25/ 30/ 36/ 40/ 45/ 50/ 56/ 60/ 65/70 /75kV	
X-ray tube current	1 - 8.0 mA	
X-ray output	MAX 300 W	
X-ray protection	Protective curtain (rapidly detachable)	
X-ray emissions	1 µSv/h or less, including conveyor entrance/exit	
Product configuration	With or without packaging	
Inspection chamber	Length	20 - 450 mm (intermittent flow)
	Width	Up to 400 mm
	Height	Up to 160 mm
Conveyor	Material	FDA approval type urethane belt (white)
	Dimensions	800 mm (L) x 430 mm (W) * + 100mm at follower side is available as an option
	Speed	10 - 60 m/min.
	Conveying weight	MAX 5 kg (over entire length) * Max 10kg is available as an option, but at 10-30 m/min belt speed
Cooling method	Hermetic air cooling	
Power supply	AC200/ 208/ 220/ 230/ 240V, 50/60Hz Voltage variation: +/- 10%	
Protective construction	IP65 (Conveyor unit: IP66)	
Operation temperature	0°C - 40°C ambient temperature (with no freezing or rapid temperature shifts)	
Operation humidity	30 - 85%RH (with no condensation)	



# IX-GA-4075-H

Medium-size X-ray inspection system



## Product size

Height	Width
0 mm	400 mm
10 mm	392 mm
20 mm	385 mm
30 mm	378 mm
40 mm	371 mm
50 mm	364 mm

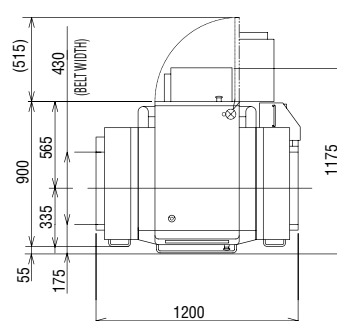
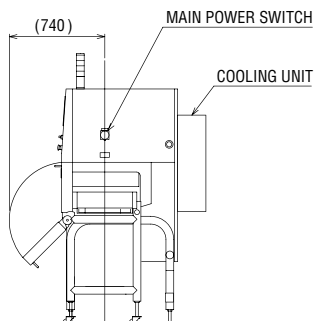
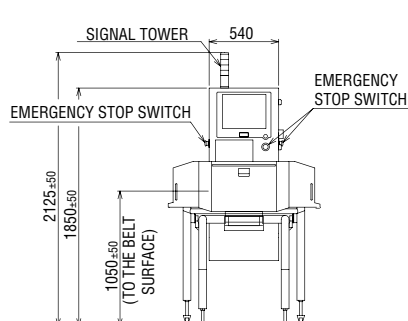
## Inspection area

The figures above show the permissible inspection range.  
Portions of the product which are not within the shaded area are not irradiated.



## External dimensions (IX-GA-4075-H)

Unit: mm



## Specifications

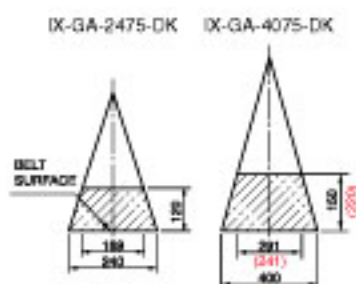
Model		IX-GA-4075-H
X-ray tube voltage		25/ 30/ 35/ 40/ 45/ 50/ 55/ 60/ 65/ 70/ 75kV
X-ray tube current		1 - 8.0 mA
X-ray output		MAX 300 W
X-ray protection		Protective curtain (rapidly detachable)
X-ray emissions		1 $\mu$ Sv/h or less, including conveyor entrance/exit
Product configuration		With or without packaging
Inspection chamber	Length	20 - 450 mm (intermittent flow)
	Width	Up to 400 mm
	Height	Up to 50
Conveyor	Material	FDA approval type urethane belt (white)
	Dimensions	1200 mm (L) x 430 mm (W)
	Speed	5 - 41 m/min.
	Conveying weight	MAX 5 kg (over entire length)
Cooling method		Hermetical air cooling
Power supply		AC200/ 208/ 220/ 230/ 240V, 50/60Hz Voltage variation: $\pm$ 10%
Protective construction		IP65 (Conveyor unit: IP66)
Operation temperature		0°C - 40°C ambient temperature (with no freezing or rapid temperature shifts)
Operation humidity		30 - 85%RH (with no condensation)

# IX-GA-2475-DK IX-GA-4075-DK IX-GA-4075-ADK

IP69K waterproof X-ray inspection system

## Product size

Height	Width	
	2475-DK	4075-DK
0 mm	240 mm	400 mm
10 mm	234 mm	392 mm
20 mm	228 mm	385 mm
30 mm	222 mm	378 mm
40 mm	216 mm	371 mm
50 mm	210 mm	364 mm
60 mm	204 mm	356 mm
70 mm	198 mm	349 mm
80 mm	192 mm	342 mm
90 mm	186 mm	335 mm
100 mm	180 mm	327 mm
110 mm	175 mm	320 mm
120 mm	169 mm	313 mm
130 mm		306 mm
140 mm		299 mm
150 mm		291 mm
160 mm		284 mm
170 mm		277 mm
180 mm		270 mm
190 mm		263 mm
200 mm		256 mm
210 mm		249 mm
220 mm		241 mm



★ IX-GA-4075-ADK

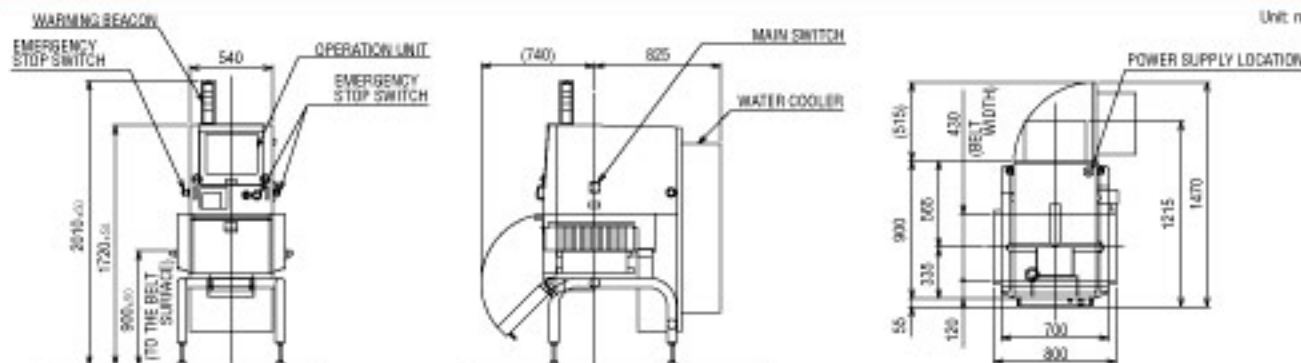
## Inspection area

The figures above show the permissible inspection range.  
Portions of the product which are not within the shaded area are not irradiated.



## External dimensions (IX-GA-4075-DK)

Unit: mm



## Specifications

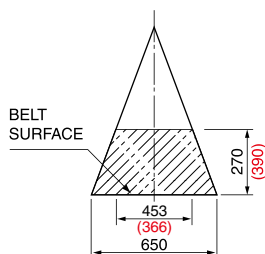
Model		IX-GA-2475-DK	IX-GA-4075-DK	IX-GA-4075-ADK
X-ray tube voltage		25/ 30/ 35/ 40/ 45/ 50/ 55/ 60/ 65/ 70/ 75kV		
X-ray tube current		1 - 8.0 mA		
X-ray output		MAX 300 W		
X-ray protection		Protective curtain (rapidly detachable)		
X-ray emissions		1 µSv/h or less, including conveyor entrance/exit		
Product configuration		With or without packaging		
Inspection chamber	Length	20 - 450 mm (intermittent flow)		
	Width	Up to 240 mm	Up to 400 mm	
	Height	Up to 120	Up to 150	Up to 220
Conveyor	Material	FDA approval type urethane belt (white)		
	Dimensions	800 mm (L) x 270 mm (W)	800 mm (L) x 430 mm (W)	
	Speed	10 - 60 m/min		
	Conveying weight	MAX 2 kg (over entire length)	MAX 5 kg (over entire length)	
Cooling method		Hermetical water-cooled type		
Power supply		AC200/ 208/ 220/ 230/ 240V, 50/60Hz Voltage variation: +/- 10%		
Protective construction		IP69K		
Operation temperature		0°C - 40°C ambient temperature (with no heating or rapid temperature shifts)		
Operation humidity		30 - 85%RH (with no condensation)		

# IX-GA-65100(-E)

Large-size X-ray inspection system

## Product size

Height	Width
0 mm	650 mm
50 mm	613 mm
100 mm	577 mm
110 mm	569 mm
120 mm	562 mm
130 mm	555 mm
140 mm	548 mm
150 mm	540 mm
160 mm	533 mm
170 mm	526 mm
180 mm	518 mm
190 mm	511 mm
200 mm	504 mm
210 mm	497 mm
220 mm	489 mm
230 mm	482 mm
240 mm	475 mm
250 mm	468 mm
260 mm	460 mm
270 mm	453 mm
280 mm	446 mm
290 mm	438 mm
300 mm	431 mm
310 mm	424 mm
320 mm	417 mm
330 mm	409 mm
340 mm	402 mm
350 mm	395 mm
360 mm	387 mm
370 mm	380 mm
380 mm	373 mm
390 mm	366 mm



★ with protective cover

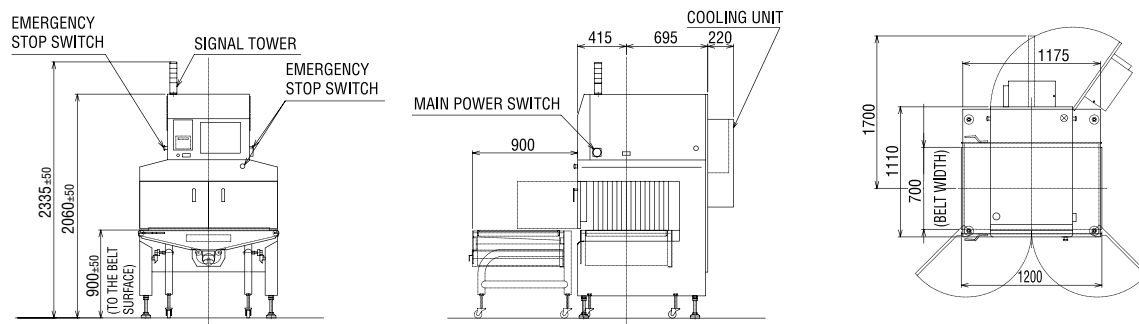
## Inspection area

The figures above show the permissible inspection range.  
Portions of the product which are not within the shaded area are not irradiated.



## External dimensions (IX-GA-65100)

Unit: mm



## Specifications

Model		IX-GA-65100(-E)
X-ray tube voltage		40/ 45/ 50/ 55/ 60/ 65/ 70/ 75/ 80/ 85/ 90/ 95/100kV
X-ray tube current		1 - 5.0 mA
X-ray output		MAX 350 W
X-ray protection		Protective curtain (rapidly detachable)
X-ray emissions		1 μSv/h or less, including conveyor entrance/exit
Product configuration		With or without packaging
Inspection chamber	Length	70 - 1,000 mm (intermittent flow)
	Width	Up to 650 mm (Fine sensor type E : 620 mm)
	Height	Up to 270 mm (Option: Up to 390 mm with safety cover)
Conveyor	Material	FDA approval type urethane belt (white)
	Dimensions	1,200 mm (L) × 700 mm (W) * + 100mm at follower side is available as an option
	Speed	5 - 30 m/min.
	Conveying weight	MAX 25 kg (over entire length)
Cooling method		Hermetical air cooling
Power supply		AC200/ 208/ 220/ 230/ 240V, 50/60Hz Voltage variation: +/- 10%
Protective construction		IP65 (Conveyor unit: IP66)
Operation temperature		0°C - 40°C ambient temperature (with no freezing or rapid temperature shifts)
Operation humidity		30 - 85%RH (with no condensation)



## Checkweigher

Ishida also manufactures a full line of checkweighers to accurately verify product weight or count at any production speed.

- Superior weight inspection
- Multi-range weighing capacity
- Comprehensive data reporting
- Durable, sanitary design
- User-friendly operation



Ishida DACS-G Series

## Rejector

Various rejecters are available for Ishida's IX series depending on product type.



Arm rejector



Drop belt rejector



Push plate rejector



Fin rejector



Ishida, the world leader in weighing technology, also manufactures a full line of multihead weighers and packaging machines.

Specifications and design are subject to change without notice.



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**HEAT AND CONTROL**

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