NEW

Inspects the uneven thickness of thin films exhaustively

X-ray TDI camera C15400-30-50A

HAMAMATSU

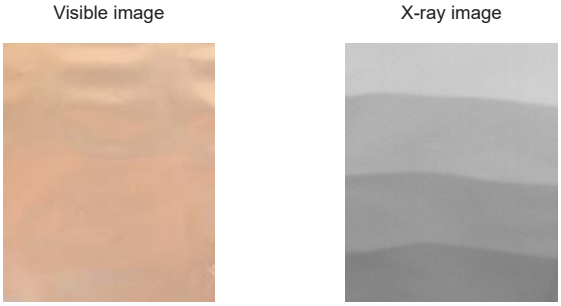
PHOTON IS OUR BUSINESS

In-line film thickness imaging using X-rays

Conventional film thickness measurement methods using visible light can measure resin films and others, which transmit visible light, but cannot measure the thickness of objects such as metal films, which do not transmit light.

By using X-ray imaging, it is possible to measure the uneven thickness of materials such as resin films as well as metal films such as Cu, Al, Ni, and Fe that cannot transmit visible light, thereby expanding the range of inspection targets.

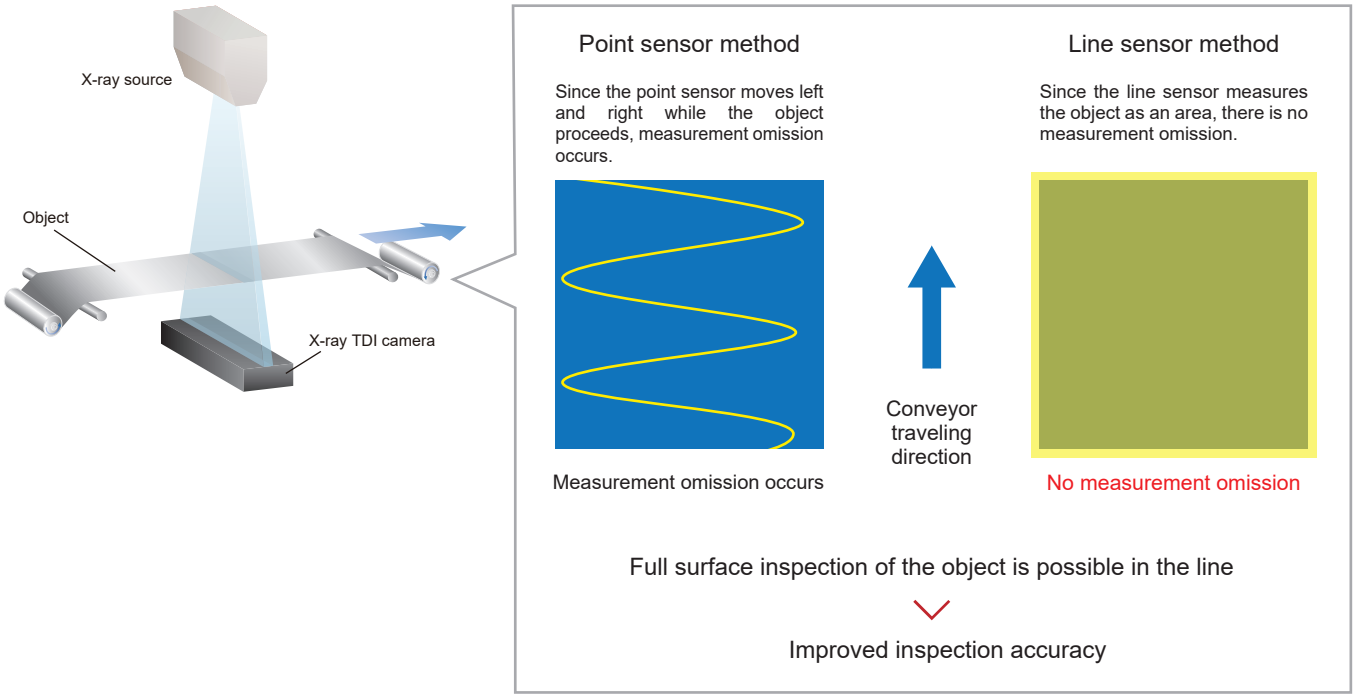
Measurement of the uneven thickness of copper foil



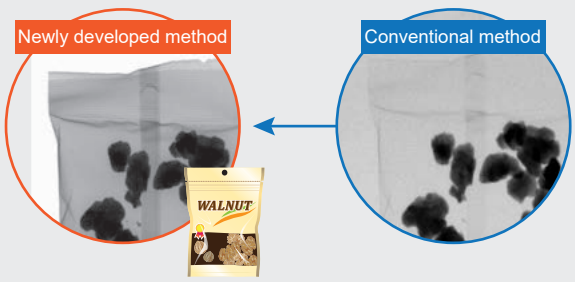
Copper foils with thicknesses of 2 µm, 4 µm, 6 µm, and 8 µm are imaged. The uneven thickness can be measured.

Full surface inspection using a line sensor camera

In uneven-thickness measurement using the conventional point sensor, measurement omission occurs inevitably, but in measurement using the line sensor camera, which captures the object as an area, not a point, the omission does not occur. This improves inspection accuracy and can be expected to provide highly accurate feedback to the manufacturing process.



The reason why the X-ray TDI camera C15400 can inspect an uneven thickness of thin objects and light element materials



* When using a tube voltage of 100 kV

A new method enables low-energy X-ray imaging.

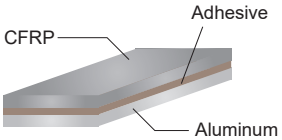
In the conventional in-line X-ray imaging technology, insufficient contrast has been a problem when imaging thin objects that easily transmit X-rays, or objects composed of light element materials such as resin.

The C15400 uses a new method that is highly sensitive to low-energy X-rays in its internal structure, enabling in-line visualization of slight uneven thickness in objects, which could not be contrasted with previous models.

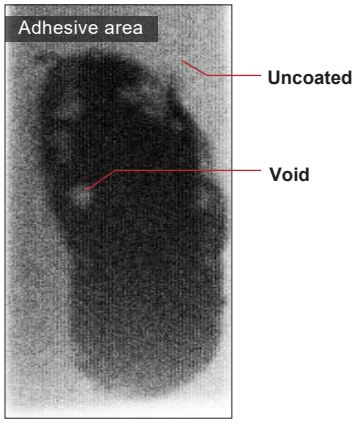
Application examples

Lightweight parts inspection (Voids in CFRP)

You can inspect uneven coating and voids in the adhesive that occur when bonding lightweight parts.



Image

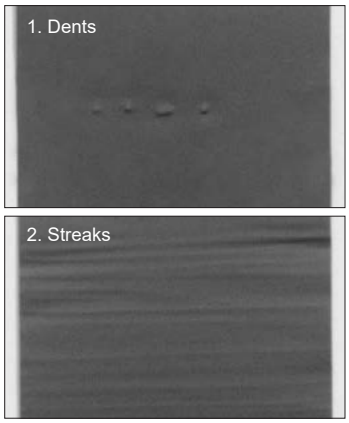


Sheet inspection (Dents, streaks)

Dents and streaks on aluminum sheets can be inspected.

Image

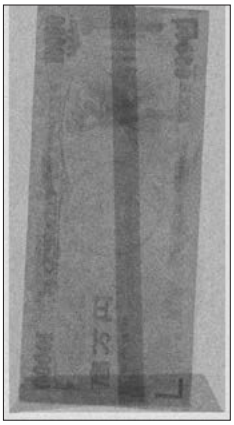
Image



Security inspection (Inside the envelope)

Paper currency enclosed in a thin package can be inspected with good contrast.

Image



Customization support

In order to fully exploit the performance of the C15400-30-50A, we can flexibly customize it to meet your needs, such as developing products with different detection widths and resolutions, downsizing, and selling it as a module to meet your application and operating environment.

Scintillator
- Type
- Thickness
- X-ray filter

Input power supply specifications
- 6 V to 35 V

Function support
- Dedicated functions upon request

Interface
- Camera Link
- USB 3.0
- GigE

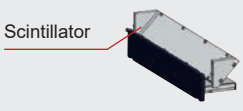
Detection width/pixel size
- Supports various detection widths and pixel sizes

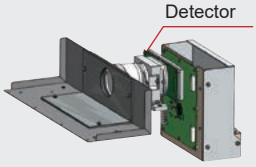
Housing option
- No housing, supports miniaturization

Software
- Development kit
- Our original software

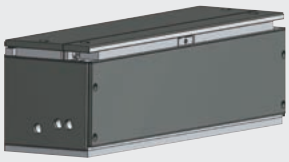
Examples of custom support

No housing





Compact and lightweight

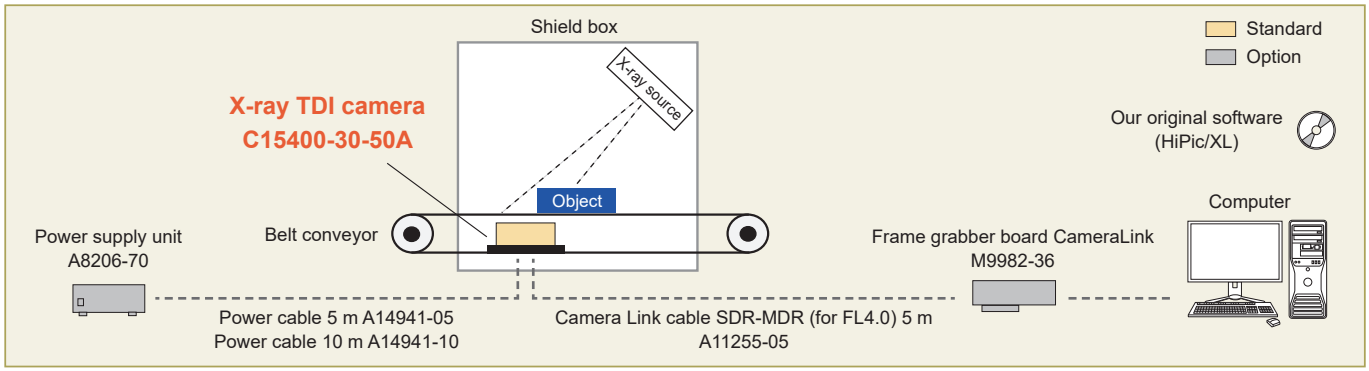


* Each component can be selected to meet your needs.

Specifications

Type number		C15400-30-50A
Scintillator		GOS/GOS
Window		Polyethylene
Effective X-ray tube voltage range		Approx. 25 kV to 110 kV
CCD pixel size		146.5 µm × 146.5 µm
Number of pixels		2048 (H) × 128 (V) + 2048 (H) × 128 (V)
Detection width		290 mm
Line speed		1.758 m/min to 153.8 m/min
TDI line rate	1×1	Max. 17.5 kHz (153.8 m/min)
	Binning 2×2	Max. 17.0 kHz (298.8 m/min)
A/D converter		12 bit
Interface (Camera Link)		Base Configuration
Pixel clock (Camera Link)		40.0 MHz
Output signals (Image data)		12 bit digital output
External control		Camera Link
Power supply		DC +24 V
Power consumption		Approx. 45 VA

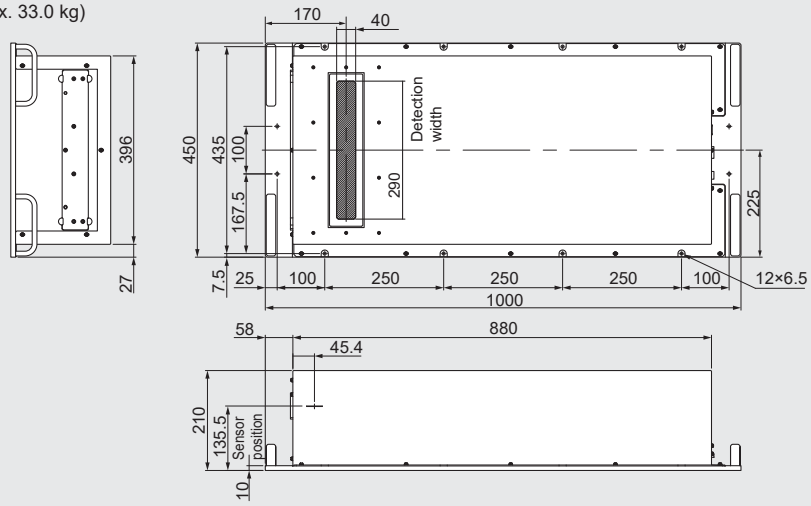
Example of system configuration



*Standard includes only the camera. Options illustrated here such as power supply unit, data transfer cable, computer, and X-ray source should be prepared separately. Contact us for more information.

Dimensional outlines (Unit: mm)

● C15400-30-50A (Approx. 33.0 kg)



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- Please note the X-ray images in this brochure are taken for test purposes; the images do not reflect actual qualities of the products on the market.

HAMAMATSU PHOTONICS K.K. **www.hamamatsu.com**

Systems Division
812 Joko-cho, Higashi-ku, Hamamatsu City, 431-3196, Japan, Telephone: (81)53-431-0124, Fax: (81)53-433-8031, E-mail: export@sys.hpk.co.jp
U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH.: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court,10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se
Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it
China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn
Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

Cat. No. SFAS0037E03
MAR/2021 HPK
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