HORIBA

Explore the future

RoHS

ELV

Hazardous Element
Inspection Instrument

XGT

Series

電子情報製品
汚染管理弁法
CHINESE RoHS

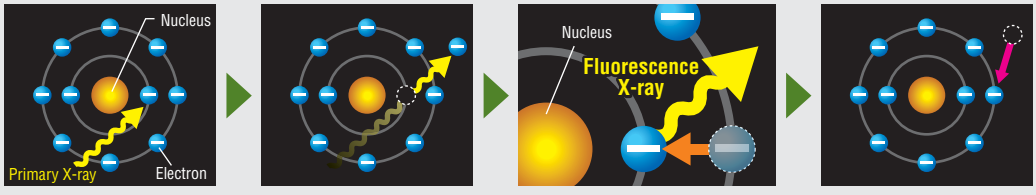
RoHS
ELV
Chinese RoHS

The environmentally aware nations of Europe have passed common environmental regulations called "European Directives" which have been adopted by the European Union (EU).
Directives which regulate hazardous substances contained in products are called "RoHS" for electronics and electrical instruments and "ELV" for automotive parts.
These directives are important regulations that restrict the importation in the Europe for non compriance product.
Moreover, this movement has also spread to other countries outside of Europe, and a similar regulation (Regulation for Pollution Control of Electronics Products) was passed in China.
Currently, equipment necessary for inspecting goods in accordance with these regulations is in demand.
Moreover, it is essential that materials used in production comply with the hazardous element regulations (RoHS/ELV) by employing lead-free solders and resins which have less of an environmental impact.
HORIBA's ecological procurement supporting instruments adhere to these regulations.

XGT-1000WR / 1700WR

XGT-5000WR / 5700WR

Principle of Fluorescence X-ray Generation



1 Absorption of primary X-ray

2 An electron is knocked out by the primary X-ray

3 Unstable State → Energy is generated when an outer-shell electron falls back to the inner shell = Fluorescence X-ray

4 An external electron is taken in and the molecule is stabilized.

Energy of the fluorescence X-ray is characteristic of the element

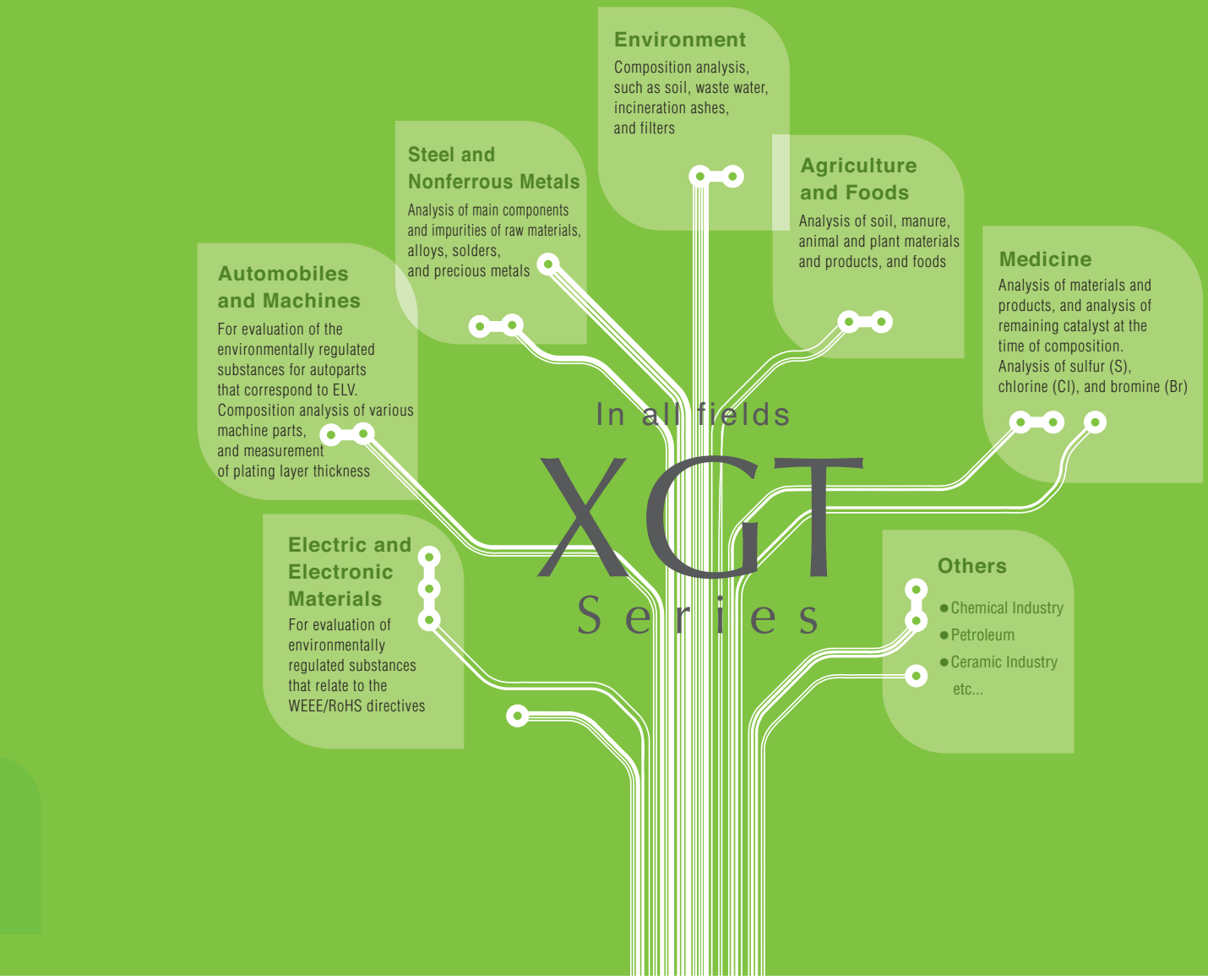
[Energy difference between orbits is characteristic of the element]

Qualitative

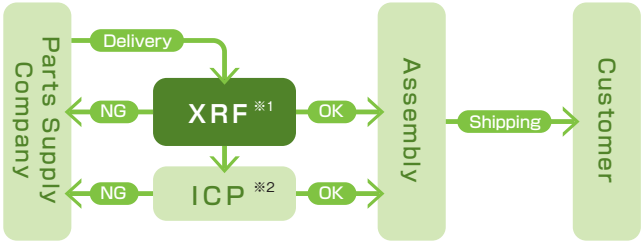
Intensity of the fluorescence X-ray

[The fluorescence X-ray intensity corresponds to the element concentration within the sample]

Quantitative



■Flow of Parts Management



※1 : Fluorescence X-ray analysis
※2 : Inductively-coupled-plasma emission spectrochemical analysis

■Analysis of Hazardous Elements

Hazardous Substances	Typical Examples of Measurement	
	Screening analysis	Detailed Analysis
Cadmium (Cd)	● Fluorescence X-ray analysis	● ICP emission spectrum analysis ● ICP mass analysis ● Atomic absorption analysis
Lead (Pb)		
Mercury (Hg)		
Hexavalent Chrome (Cr^{6+})	● Fluorescence X-ray analysis (analyzing all Cr) ● Spot test	● Absorptiometric analysis ● Ion Chromatography Analysis
Polybrominated biphenyl (PBB) ※3	● Fluorescence X-ray analysis (analyzing all Br) ● FTIR method (% order)	● GC mass analysis
Polybrominated diphenyl ether (PBDE) ※3		

※3 : Only subject under the RoHS

RoHS

RoHS (Restriction of the use of certain Hazardous Substances)
Restriction of the use of certain hazardous substances in electric and electronic instruments. Prohibited substances include cadmium (Cd), lead (Pb), mercury (Hg), hexavalent chrome (Cr), polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE).

CHINESE RoHS

Chinese RoHS (Regulation for Pollution Control of Electronics Products)
Six substances which are controlled subjects by the European RoHS for the electronic information products marketed in China are regulated. It has been enforced starting March 1, 2007 and only obligates displaying of the controlled substances at the beginning. However, an intensive administrative list will be created in the future, and the uses of the controlled substances in the products which appear in this list will be forbidden. (The products to appear in the list has not yet been determined)

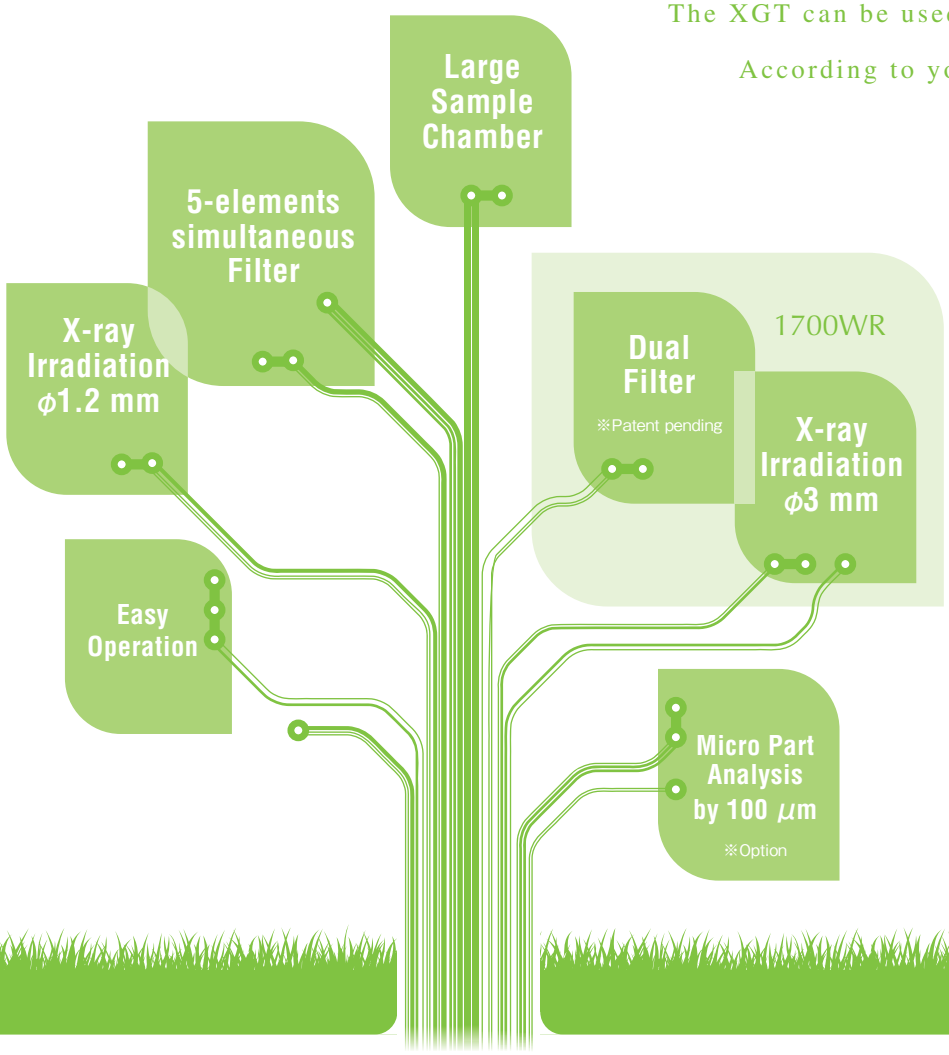
ELV

ELV (End of Life Vehicles Directive)
Effective from October 21, 2000 (published in Official Journal). By the ELV, the use of four substances of cadmium (Cd), lead (Pb), mercury (Hg), and hexavalent chrome (Cr), etc. is regulated.

※All photos are for illustrative purposes only. ※Screen images are simulated. ※For actual use, connection of power cords and cables is required.

Point? Area? HORIBA

The XGT can be used for various samples,
According to your application please
by the XGT series _



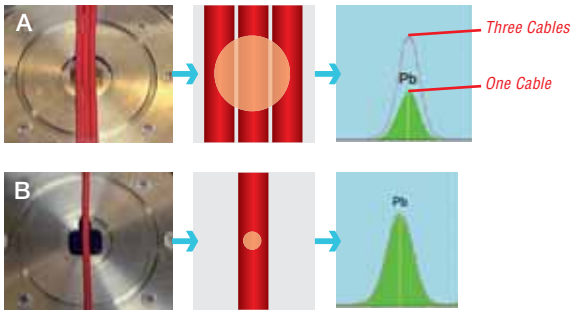
Point Analysis

Easy analysis because of the small X-ray irradiation diameter.

Sample: Cable covering (2 mm in diameter)

Measurement Conditions: A: Conventional instrument (irradiation diameter: ϕ5 mm),
B: XGT-1000WR (irradiation diameter: ϕ1.2 mm)

For accurate measurement it is necessary for the irradiation beam to entirely hit the sample. With a large X-ray beam narrow samples such as cable coverings must be grouped together. With the 1.2mm irradiation beam of the XGT this is not necessary. Simple and accurate measurement is possible.



1000WR

Page 09

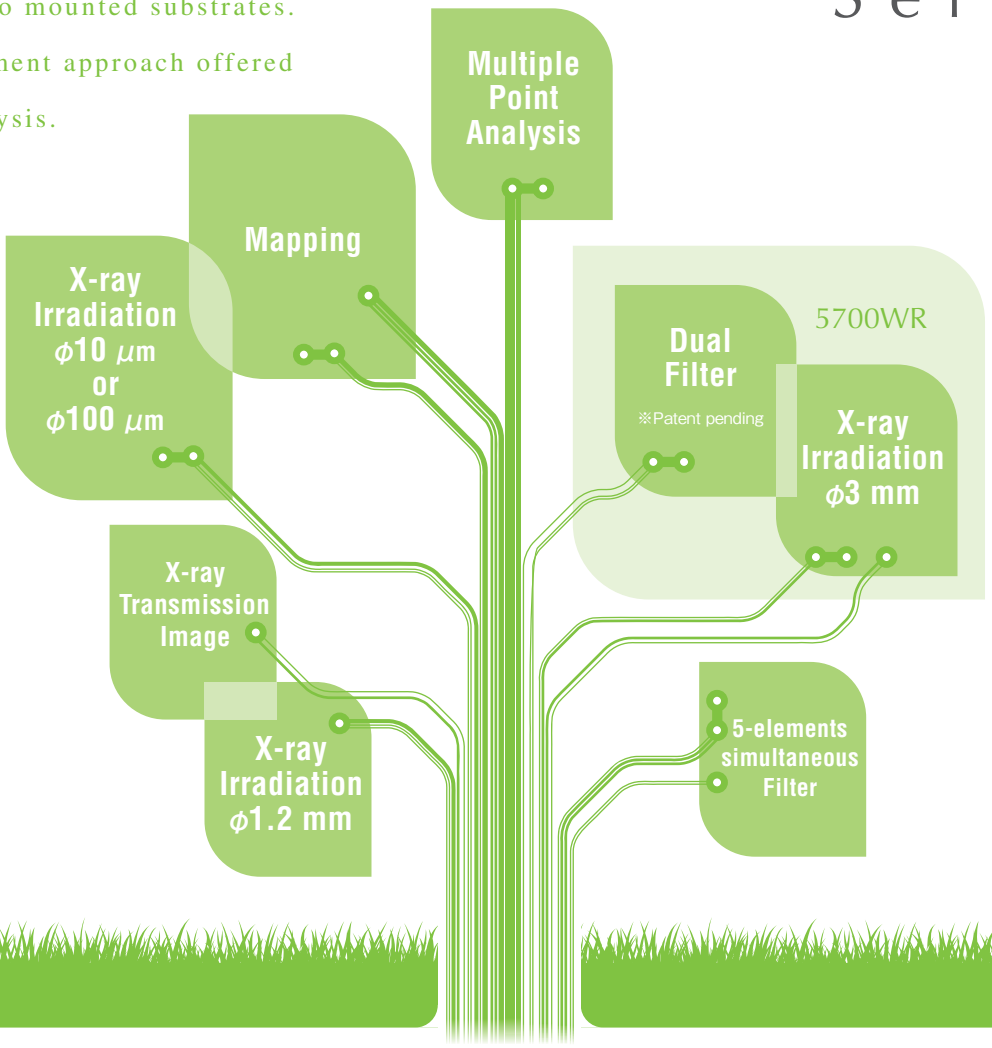
1700WR

Page 11

XGT Series

offers both approaches.

from small parts to mounted substrates.
choose a measurement approach offered
point or area analysis.



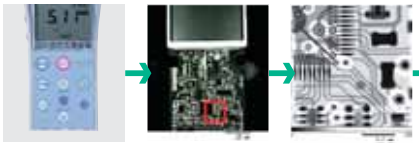
Area analysis

Comprehensive results with mapped images

Sample: Horiba's pH meter

Measurement Conditions: X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : φ100 mm
Mapping area : 12.8x12.8 mm

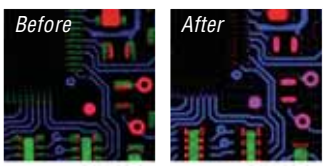
A conventional substrate with lead-containing solder and a substrate with lead-free solder were analyzed. From the element mapped image, it is shown that lead is not contained in the lead-free solder; however, lead is still present in the parts.



Horiba's pH meter *Optical Image* *X-ray Transmission Image*

RGB Composition Image
Ni+Pb+Cu

As seen in the photo to the right, element distribution is obvious from the RGB composite image.



Containing lead *Lead-free*

5000WR Page 13

5700WR Page 13

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Performance

HORIBA's original X-ray focusing technology enables high-precision and high-speed analysis.

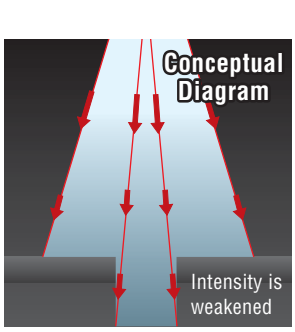
HORIBA's X-ray Focusing Technology

Use of the X-ray guide tube, unique to HORIBA

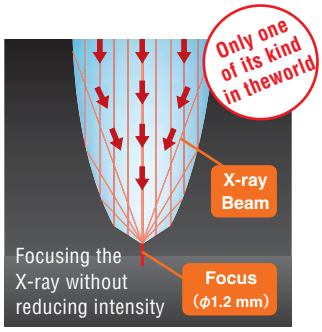
The XGT adopts a narrow and high-intensity X-ray system using HORIBA's original X-ray focusing element. The XGT excels in measuring time and accuracy compared with a system using an X-ray collimator.

100μm Probe (optional)

Practical and easy to use micro-part analyzing instrument with a 100 μm X-ray guide tube of simultaneous multiple elements (Na to U).



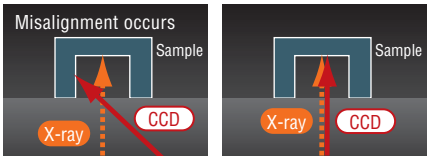
Normal Use a collimator



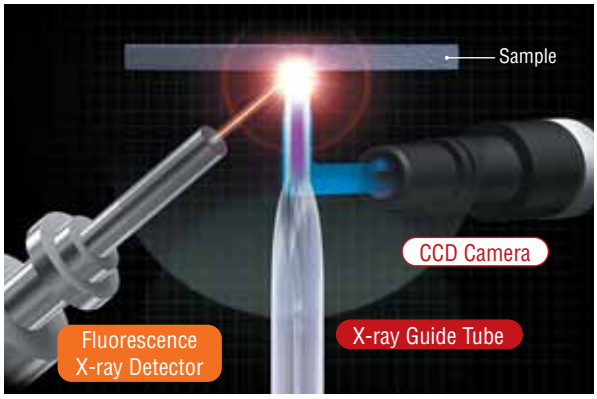
XGT Use an X-ray guide tube

Measuring point can be reliably aligned

Because the X-ray irradiation and the CCD observation are coaxial, the measurement point will never be out of alignment. In case that the X-ray irradiating surface is uneven caused by the sample itself or binding the samples, it may happen as shown in the figure below.

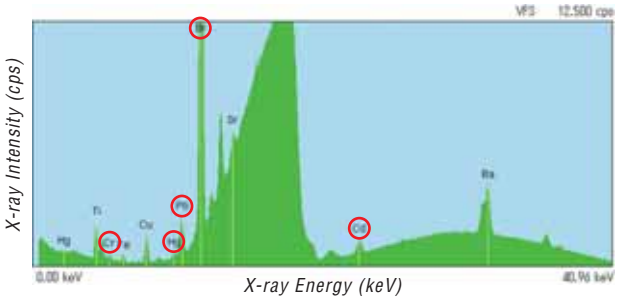


Non-coaxial Coaxial



By adopting the exclusive special filter, Pb/Cd/Hg/Cr/Br can be measured simultaneously.

It is possible to obtain information on elements from X-ray energy, and know the concentration of the elements from the X-ray intensity.

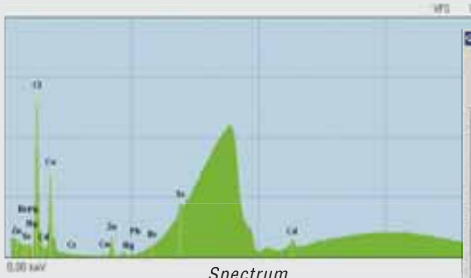


Simultaneously Measuring Extremely-small-amount Hazardous Elements & Coexisting Elements

The hazardous elements and coexisting elements in resin can also be measured simultaneously.

Measuring Time	100 seconds
Quantitative Methods	Hazardous elements: Analytical curve quantitative method Coexisting elements: FPM quantitative method

Coexistin elements, other than hazardous elements, can also be checked.



Spectrum

Quantitative Results

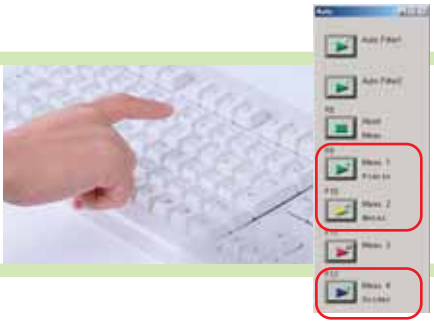
Easy Operation

1 Place a sample while looking at the optical image

Simply place the sample directly into the sample chamber.
No pretreatment is necessary if it is 1.2 mm or more.

2 Press the measurement button

Simply press the start button for the 5-element-simultaneous analysis.
No switching of filters is necessary.

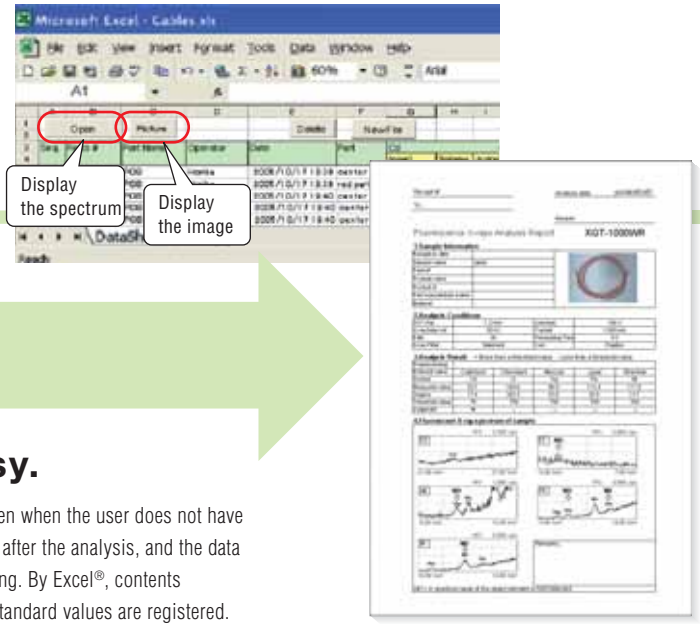


3 Measurement and displaying the results

Automatic display of quantitative window after measurement.

4 Determining compositions and saving the results

Automatically transmit to Excel® with one click. OK/NG determination is also possible, if in-house administrative values are registered.



Data management and report generation is easy.

The XGT series is designed to perform reliable and quick inspection even when the user does not have special knowledge. The quantitative results are automatically displayed after the analysis, and the data is transmitted to Excel® by one click. The data is powerful for data editing. By Excel®, contents determination can be automatically performed if each user's in-house standard values are registered.

Qualitative Analysis Report
(An exclusive format can also be created with the touch of a button)

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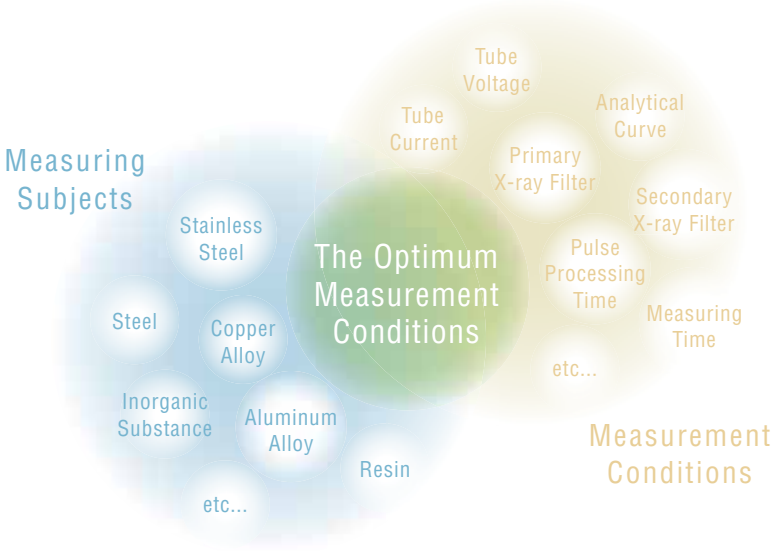
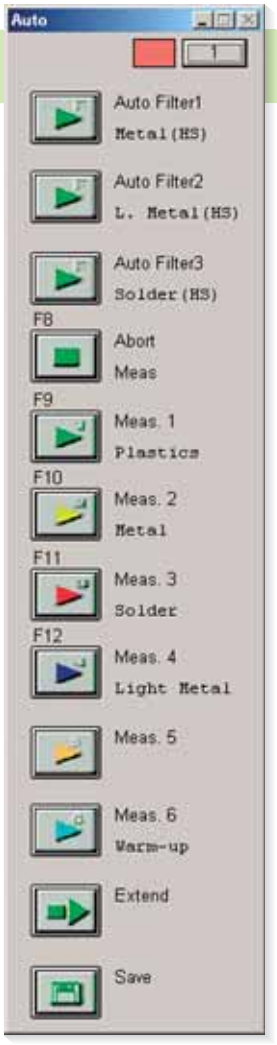
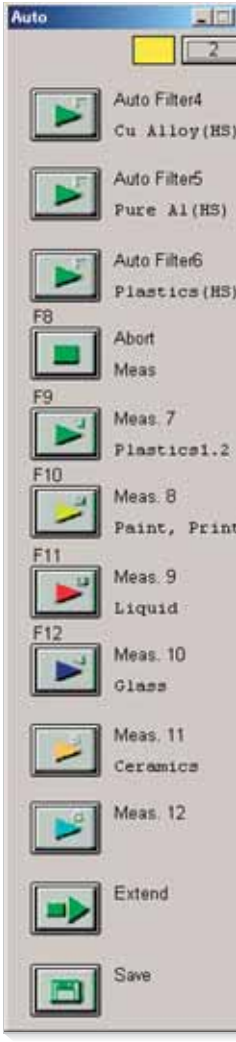
Performance

Support your analysis with well-developed functions.

List of the Functions







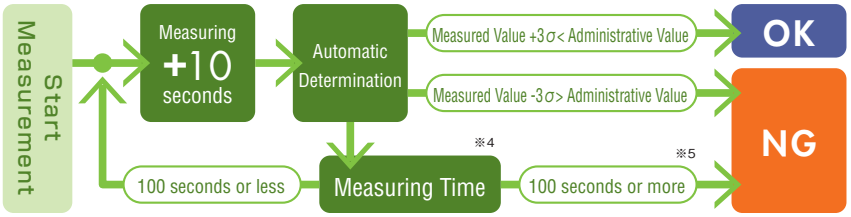
Assign optimum analysis conditions to certain buttons.

Usually, setup of the optimum measurement conditions is necessary for each material to perform high-precision analysis. The XGT is prepared with a one-touch measurement button※1 for each material (with a maximum of 18 materials※2). Setup time and effort are eliminated and, thus, no mistakes occur.

※1 Settings of any measurement conditions and qualitative compensation conditions are possible according to the types of subject sample.
※2 Maximum number of assignable one-touch measurement buttons differs depending on the version.

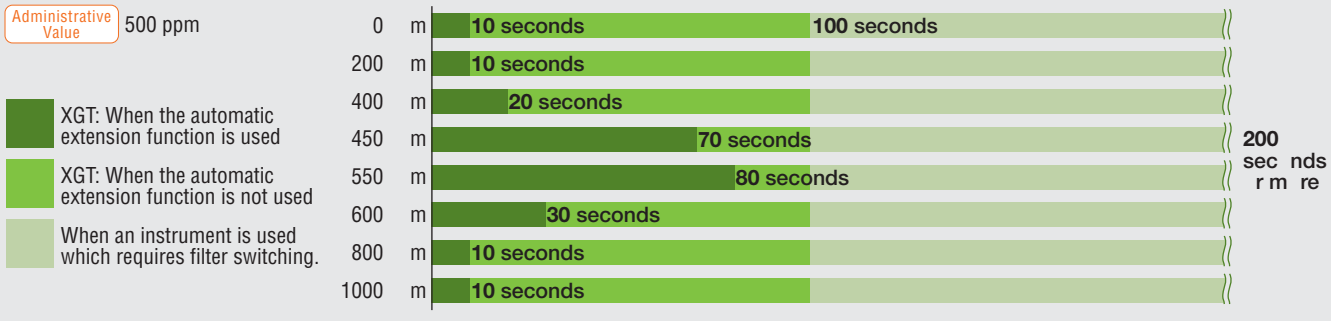
Automatic Extension-of-Measurement Function for Shortening the Measuring Time

This is a function to automatically set up the optimum measuring time, while the instrument measures according to the administrative values for the hazardous elements and the sample. Simultaneous measurement of Cd/Pb/Cr/Hg/Br is possible in as little as 30 seconds※3.



※3 Determination time varies with concentration of hazardous elements and material type of sample.
※4 Set the maximum time of extension (e.g., 100 seconds)
※5 Determined to be NG when the time is up
※6 The measurement will be terminated when OK or NG can be determined

Measuring the hazardous element (Pb) in PVC



Measuring Film Thickness with the Multilayer Film FPM (optional)
- Pb Measurement of a non-electrolyzed Ni plating sample -

Pb contained as a stabilizer in the non-electrolyzed Ni plating solution contaminates the Ni plating.

otep #1

A test piece (SUS plate) is Ni plated and removed to be stacked in sufficient thickness (tens of μm) for analyzing

Removed Ni plating foil

te #2

Film thickness and concentration of the plating sample is directly measured by the Multilayer Film FP method.

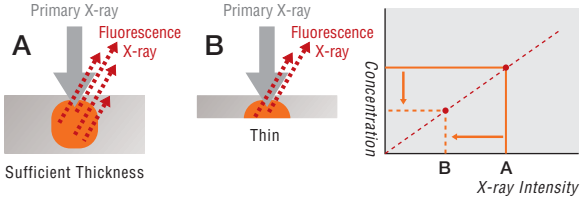
Layer Composition	Composition Elements
1st layer	Ni/P/Pb
2nd layer (bulk)	Fe

Measurement Results (Pb Concentration) (Unit: mass ppm)

Sample	ICP	XGT	
		Step #1	Step #2
No.1	396	444	400 (18.6μm)
No.2	674	736	600 (19.9μm)

Thickness Compensation

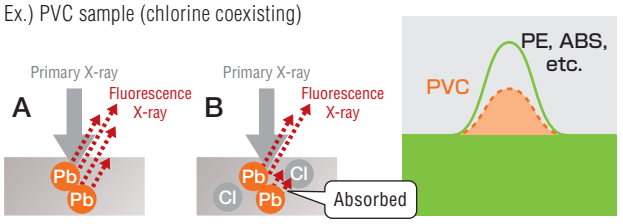
If the sample does not have sufficient thickness, the concentration will be calculated lower. Thickness compensation is performed by paying close attention to the peak/background ratio.



Sufficient Thickness

Matrix (Chlorine) Compensation

Ex.) PVC sample (chlorine coexisting)



Without Disturbing Elements
PE, ABS resin, etc.

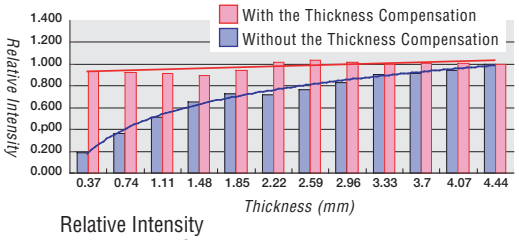
With Disturbing Element (Cl)
PVC resin

For PVC, the hazardous elements of the same concentration also have lower peaks.

Effects of the Thickness Compensation

Sample: PVC tube (7 mm in outer diameter)

Thickness: 0.37mm



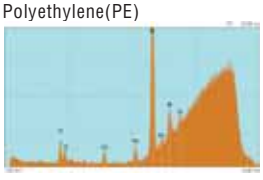
Relative Intensity
(based on the Cd intensity of 4.44 mm with 12 layers)

Measure to the Matrix (Chlorine)

Only one analytical curve is needed in cases where resin formula is unknown

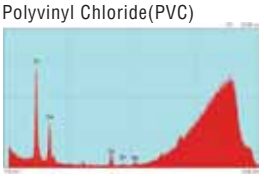
Normal Measurement (100 seconds) → Check a chlorine peak → Compensate the absorption by chlorine

Polyethylene(PE)



ICP measured value: 137 ppm
XGT measured value: 130 ppm

Polyvinyl Chloride(PVC)



ICP measured value: 98.1 ppm
ICP measured value: 98.6 ppm

Automatic Determination of Pb - Influence on Pb by As -

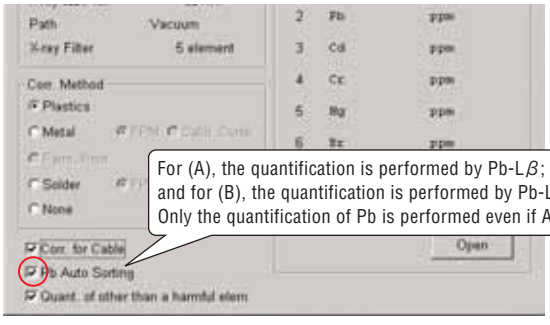
Pb-Lα line and As-Kα line overlap. In cases where a lot of As is contained, the automatic sorting function performs a quantification by Pb-Lβ.

A

If Pb is contained, two peaks of Pb-Lα, Lβ will appear

B

Because there is no peak of Lβ, it can be said that the peak considered to be Pb-Lα is a peak of As



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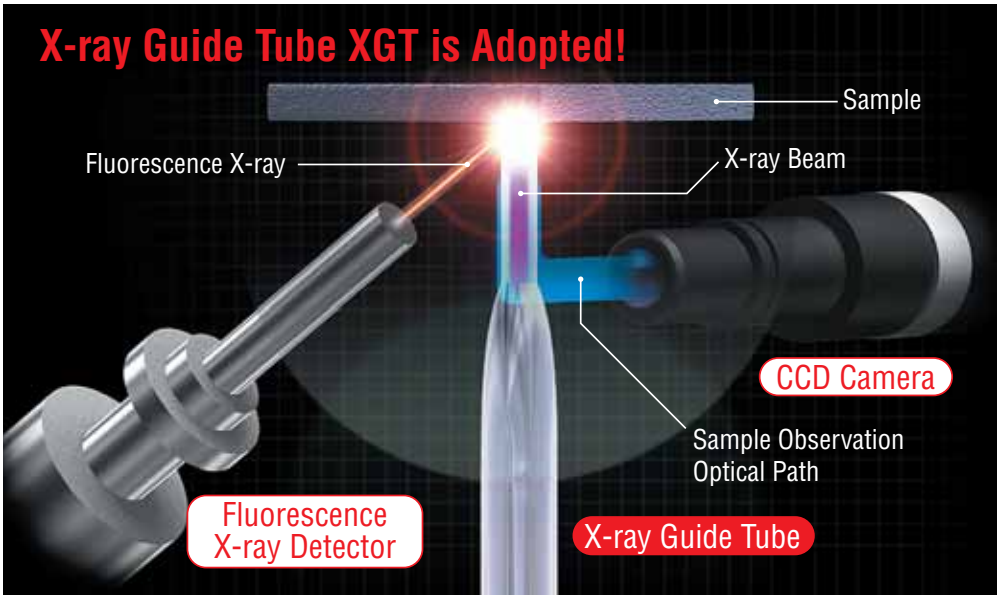
XGT

1000WR

From small parts

The XGT differs in its X-ray intensity. The secret of high-precision and high-speed analysis.

The XGT-1000WR/1100WR adopts a narrow and high-intensity X-ray beam system using HORIBA's original X-ray focusing element. It outperforms systems using an x-ray collimator in both measuring time and accuracy.



Pb/Cd/Hg/Cr/Br are measured simultaneously with the 5-element filter.

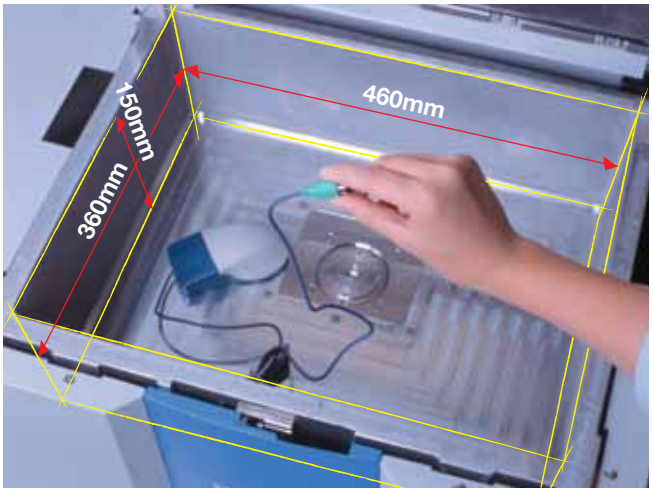
RoHS CHINESE RoHS ELV

- X-RAY 1.2 mm
- X-RAY 100 μm (optional)

to large products, widely applicable.

Large sample chamber is a standard.

Large samples (keyboard etc.) can also be measured nondestructively by using the large sample chamber. No pretreatment is necessary.

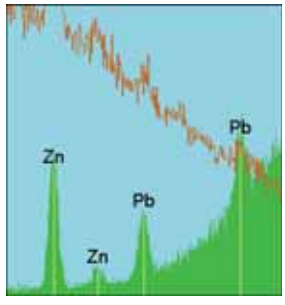


Detection sensitivity is considerably increased

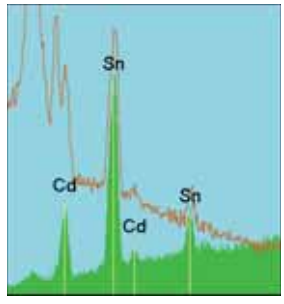
By using HORIBA's original 5-element-simultaneous filter, five elements may be detected with sufficient sensitivity.

5-element-simultaneous measurement

With an exclusive primary filter / No filter



Lead (Pb) Spectrum



Cadmium (Cd) Spectrum

Application

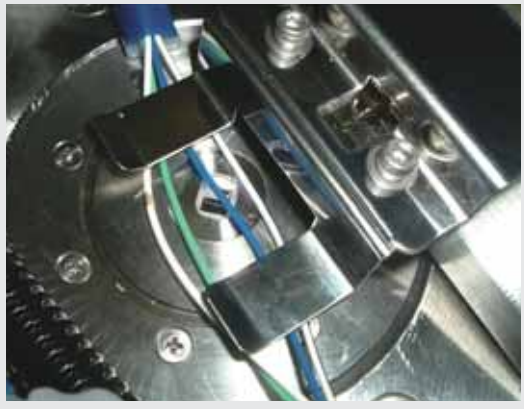
Analyzing a wire harness

Sample: Wire harness

Measurement Conditions: Irradiation diameter: ϕ1.2 mm

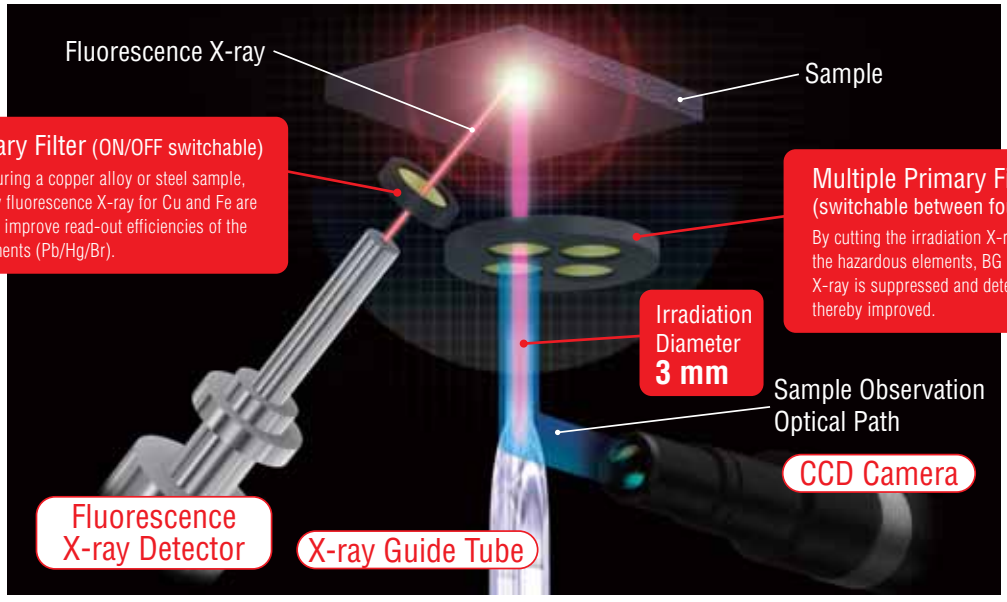
1. Directly placing a sample into the sample chamber.
2. With the 1.2 mm X-ray irradiation diameter, a small part (e.g., wire harness) can also be easily measured.
3. Anyone can obtain accurate measurement results.

※Cable securing kit (optional) is used in the photo.

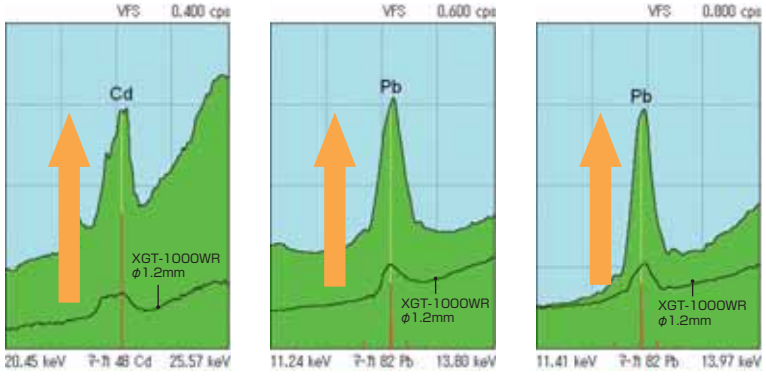


New optical system for analyzing hazardous elements in metals with high sensitivity

The XGT-1700WR uses an x-ray guide tube to generate a 3 mm irradiation beam. Improved detection sensitivity is realised through the use of a dual filter (primary and secondary filters). The XGT is the first XRF system to use a dual filter for WEEE/RoHS and ELV applications.



Improvement in Sensitivity



Sample: Copper alloy
Concentration: Cd97 ppm

Sample: Copper alloy
Concentration: Pb511 ppm

Sample: Solder
Concentration: Pb890 ppm

XGT

1700WR

RoHS　Chinese RoHS　ELV

- X-RAY 3 mm
- X-RAY 1.2 mm (optional)
- X-RAY 100 μm (optional)

Sensitivity is greatly improved by adopting the new optical system!

Measurement Data

●In Brass: Cd 41 ppm, Pb 495 ppm (repeatedly-measured example)
X-ray irradiation diameter: ϕ3 mm　Measuring time: 300 seconds

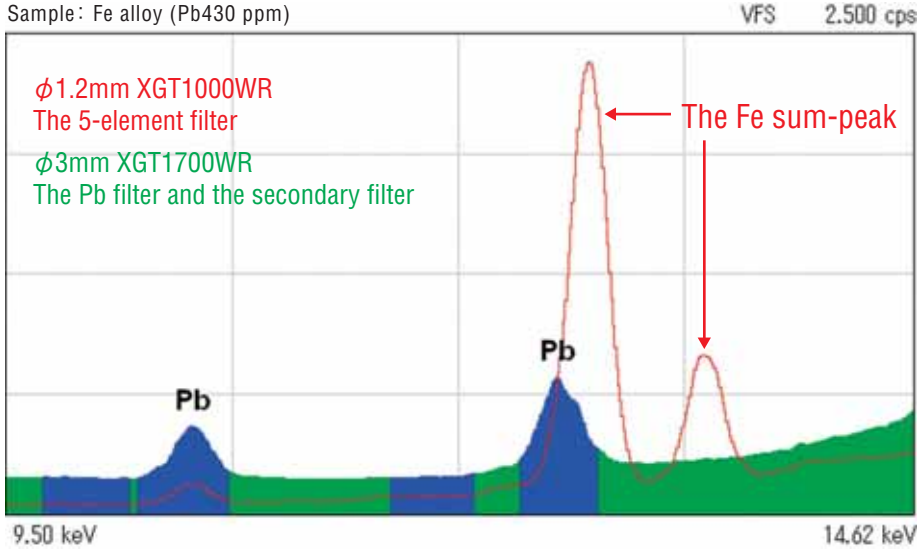
Number of Measurements	Cd Concentration (ppm)	Pb Concentration (ppm)
1	37.3	509.2
2	41.2	488.4
3	40.2	492.9
4	46.8	486.5
5	43.3	482.6
Average Value	41.8	491.9
Standard Deviation	3.6	10.3
CV	8.5%	2.1%

●In electrolyzed Ni plating (14.3 μm): Pb 700 ppm (repeatedly-measured example)
X-ray irradiation diameter: ϕ3 mm　Measuring time: 300 seconds

Number of Measurements	Pb Concentration (ppm)	Film Thickness (μm)
1	735.7	13.7
2	708.8	14.4
3	750.0	13.5
4	707.8	13.9
5	693.0	13.0
Average Value	719.1	13.7
Standard Deviation	23.2	0.5
CV	3.2%	3.7%

Application

Effect of Pb/secondary filter (Fe alloy sample)



The Pb filter and the secondary filter reduce background and the Fe sum-peak is also decreased, while the Pb-Lβ line can also be checked.

XGT

RoHS CHINESE RoHS ELV

5000WR

- X-RAY 1.2 mm
- X-RAY 100 μm or 10 μm

5700WR

- X-RAY 3 mm
- X-RAY 100 μm or 10 μm

Welcome to the 10

The secret of high-speed and detailed measurement, which is only possible with the XGT.

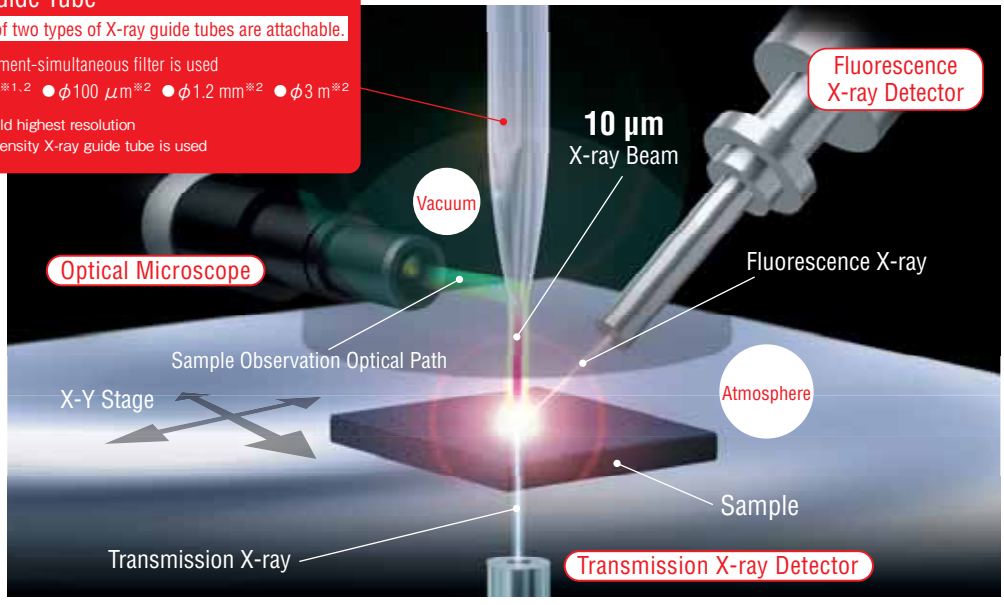
The use of HORIBA's original X-ray focusing element provides a narrow and high intensity X-ray beam. High speed measurement of micro parts is easily possible, in comparison with conventional systems using X-ray collimators. Moreover the optional liquid nitrogen free detector which uses a pulse tube freezer provides complete ease of use (5100WR/5710WR). Safe and high precision analysis is realised.

X-ray Guide Tube

Maximum of two types of X-ray guide tubes are attachable.

- The 5-element-simultaneous filter is used
- φ10 μm※1,2 ●φ100 μm※2 ●φ1.2 mm※2 ●φ3 m※2

※1 the world highest resolution
※2 high-intensity X-ray guide tube is used



From one point to an entire area, the analytical possibilities are endless.

Hazardous element distribution of an electrical component or a printed circuit board is shown at a glance using the mapping function. Furthermore, the high-precision measurement of the hazardous elements is possible by the automated multiple point analysis function. If switched to the X-ray focusing guide tube designed for analysis of micro parts, fluorescence X-ray analysis and transmission X-ray analysis are also possible with 10 μm resolution. Foreign objects and defects can be analysed quickly and simply.

Standard Sample

μm world!

Awarded the Good Design Award

Awarded R&D100 Award of U.S. R&D Magazine

Application

Mapping Analysis

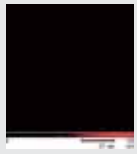
Sample: Cables

Measurement Conditions:
X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : ϕ100 μm
Mapping area : 90.211x90.211 mm


X-ray Transmission Image


Cl Kα


Ca Kα


Br Kα


Cd Kα

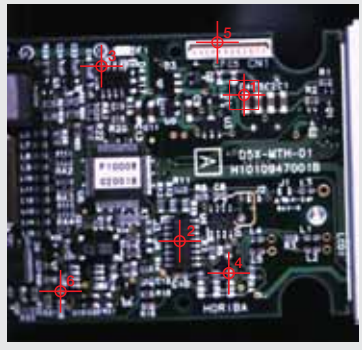

Ni Kα


Pb Lα


RGB Composition Image
(Ni Pb Cl)

Multiple Point Analysis of a Printed Circuit Board

Multiple points specified from the optical image can be continuously measured.

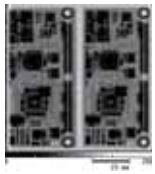

Multiple Point Automatic Analysis


Conventional Product　Pb-free Product

Analysis of the Printed Circuit Board

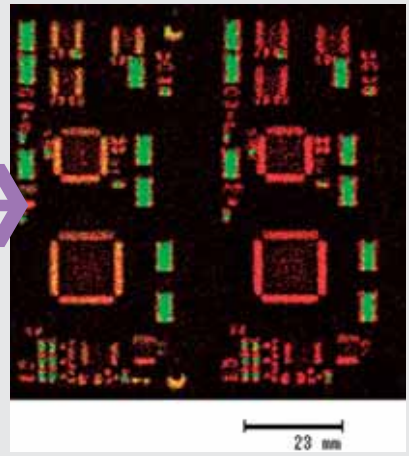
- Comparison of the conventional product and Pb-free product -

Measurement Conditions:
X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : ϕ1.2 mm (with a primary X-ray filter)
Measuring time : 1000 seconds
Mapping area : 93x93 mm


X-ray Transmission Image


Sn Kα


Pb Lα

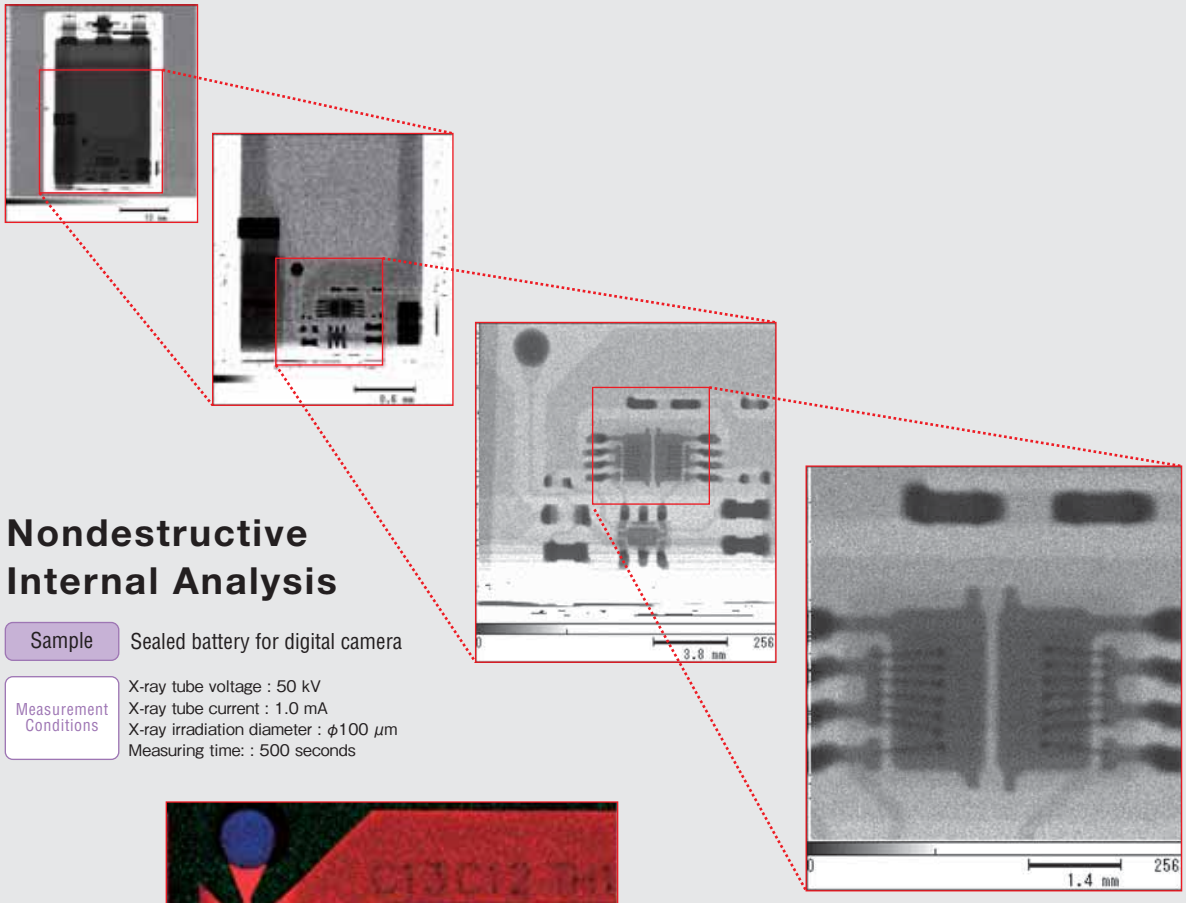


Red: Sn, Green: Pb (Composition Image)

※All photos are for illustrative purposes only. ※Screen images are simulated. ※For actual use, connection of power cords and cables is required.

Examples of 5000 series.

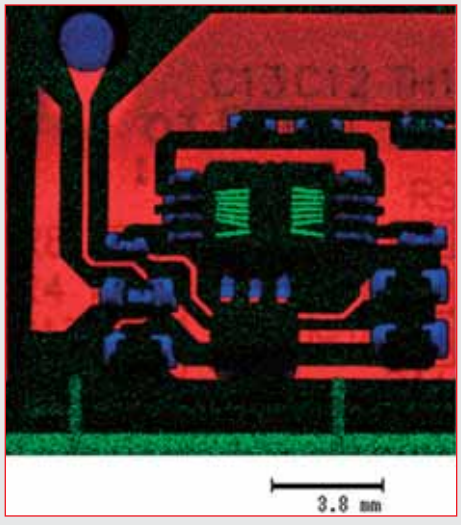
Application



Nondestructive Internal Analysis

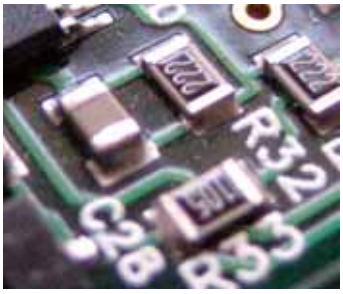
Sample Sealed battery for digital camera

Measurement Conditions
X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : ϕ100 μm
Measuring time: : 500 seconds



RGB Composition Image

XGT Series

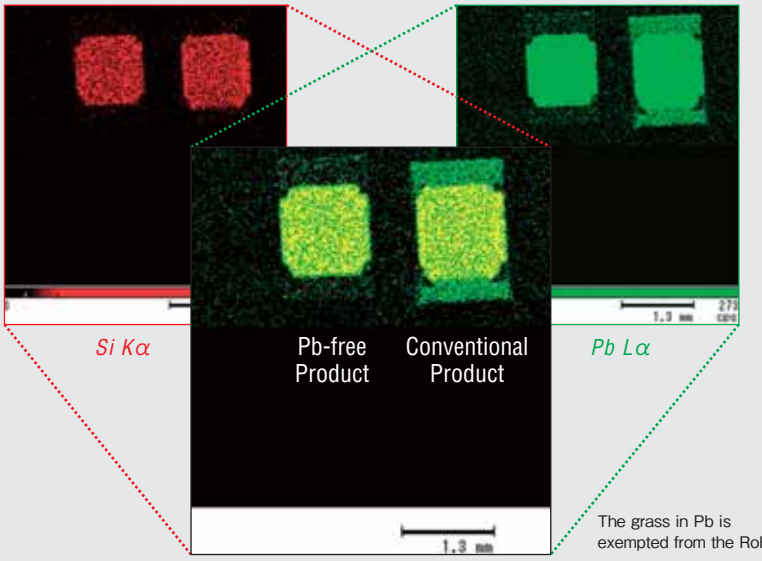


Analysis of Chip Resistor

- Identifying parts exempted from the regulations -

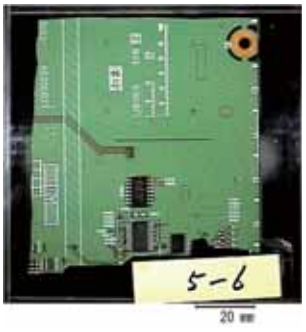
Sample: Chip Resistor

Measurement Conditions:
X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : ϕ10 μm
Measuring time : 1000 seconds
Mapping area : 5x5 mm



The grass in Pb is exempted from the RoHS.

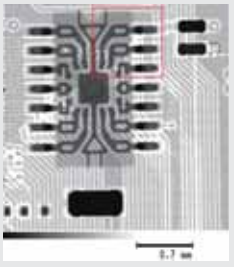
Red: Si, Green: Pb (Composition Image)
Yellow: Sn + Pb



Analysis of a Printed Circuit Board

Sample: Printed circuit board

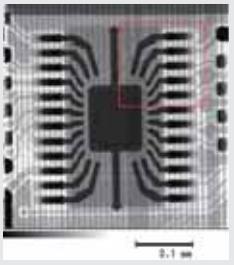
Measurement Conditions:
X-ray tube voltage : 50 kV
X-ray tube current : 1.0 mA
X-ray irradiation diameter : ϕ10 μm
Measuring time : 1000 seconds
Mapping area : 99.840x99.840 mm



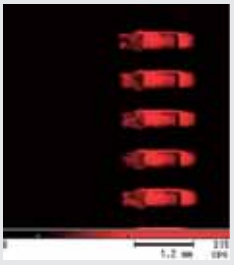
Pb-detected IC Pin Part

Sn Kα

Pb Lα



Pb-undetected IC Pin Part



Sn Kα

Pb Lα

Line up of the Large and Supersized sample chamber models

Large and unwieldy samples can now be measured with the same performance and ease of use. Previously it was necessary to cut or pretreat such samples prior to analysis. These models can be configured for WEEE/RoHS/ELV directives as with the other XGT systems.

XGT

RoHS CHINESE RoHS ELV

5000 TypeS

- X-RAY 1.2 mm※
- X-RAY 100 μm※
- X-RAY 10 μm※

Two are selected from ※.

〈 Large Sample Chamber Model 〉

■Sample size
500 mm(W) x350 mm(D) x85 mm(H)

■Mapping size
200 mm x200 mm

XGT

RoHS CHINESE RoHS ELV

5000 TypeSL

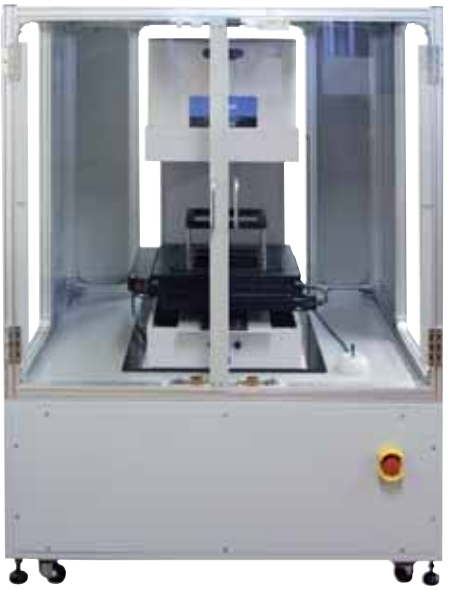
- X-RAY 1.2 mm※
- X-RAY 100 μm※
- X-RAY 10 μm※

Two are selected from ※.

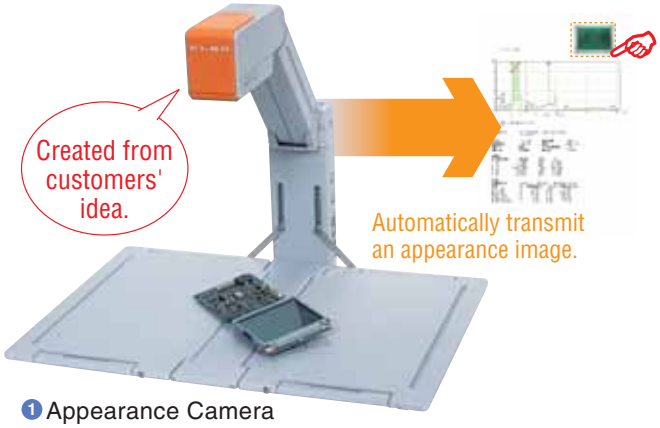
〈 Supersized Sample Chamber Model 〉

■Sample size
500 mm(W) x500 mm(D) x300 mm(H)

■Mapping size
200 mm x200 mm



Various Support Accessories



❶ Appearance Camera

In combination with the XGT-1000WR series it is possible to automatically transmit and save a photograph of the sample to the instrument PC. The image can the be used within the report generated from the measurement results.

❷ PET Cell

This is convenient for liquid, powder, and microsample analysis.

❸ Disposable Cell

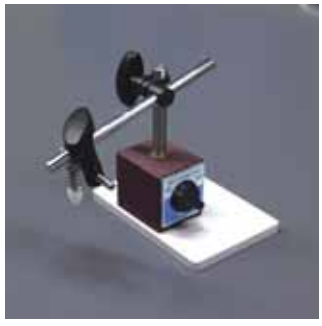
This is convenient for analyzing a large amount of samples.

❹ Teflon Cell

This is convenient for sample analysis of an organic solvent, etc.

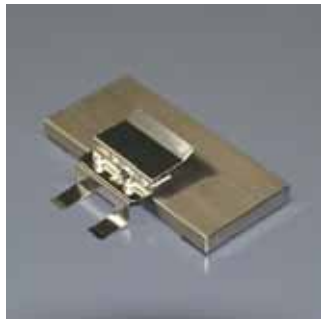
❺ Powder Pressing Machine

Pressing of a powder sample is possible using this electric press machine



❻ Sample Holding Kit

This is an exclusive tool for holding a sample with a complicated shape.

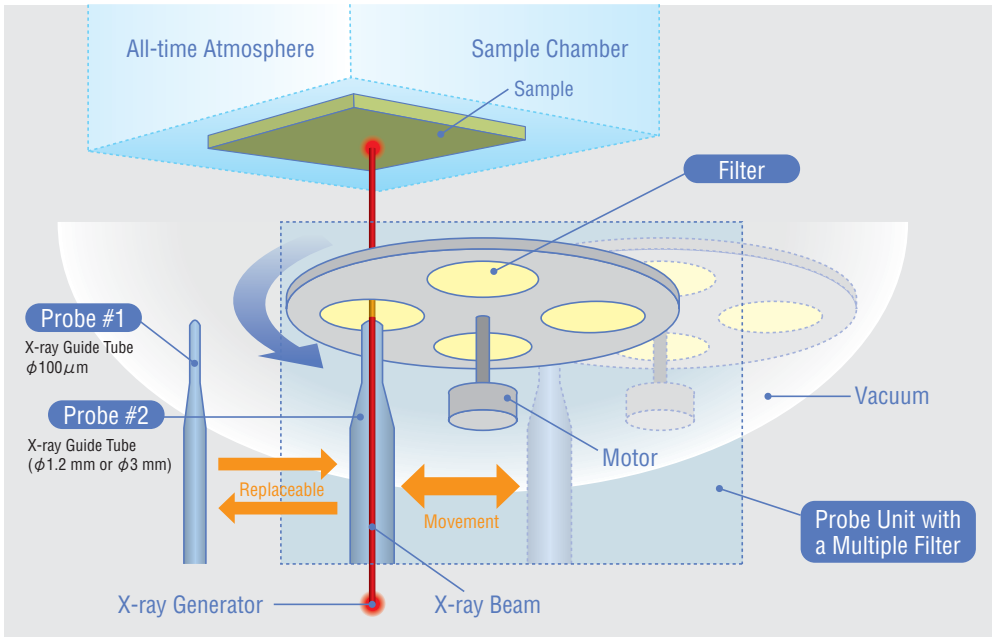


❼ Cable Holding Kit

This is an exclusive tool useful for holding cables.

❽ Large X-ray ON light

The light illuminates during X-ray irradiation (during analysis).



❾ Multiple Filter

The XGT is equipped with the hazardous-5-element simultaneous analysis filter*, which is unique in the industry for fast analysis of all five RoHS/ELV elements. Further, a multiple-filter unit allows a number of filters to be switched, for analysis of specific elements, and general purpose analysis (Na-U). *As of March, 2005

Option

※All photos are for illustrative purposes only. ※Screen images are simulated. ※For actual use, connection of power cords and cables is required.

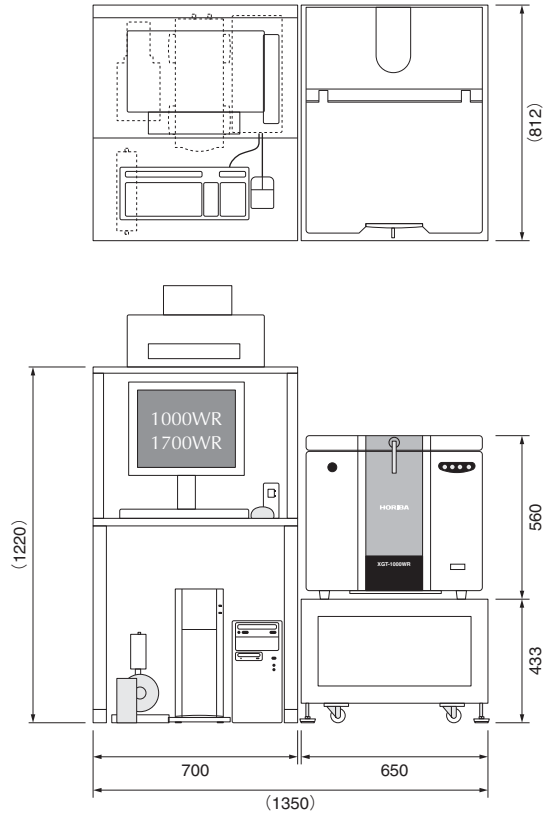
Specification

XGT 1000WR

XGT 1700WR

Measurement Principle		Energy-dispersion-type Fluorescence X-ray Analysis	
Measurable Elements		Si to U and Na to U (optional)	
Sample Dimensions		Max 460 x 360 mm (Height 150 mm)	
Sample		Plastic, metal, paper, and liquids such as paint and ink	
Sample Chamber Atmosphere		Atmosphere	
XGT Element Spatial Resolution		1.2 mm, and additional 100 µm (optional)	Standard 3 mm, or choose from 1.2 mm and 100 µm (optional)
X-ray Tube		50 kV/1 mA, Rh Target	
Vacuum Probe		Optional	
Primary X-ray Filter		For 5-element-simultaneous analysis(Cd/Pb/Cr/Hg/Br),Automatic switching between maximum of four types, such as for Cd/exclusive for Cr, Cl/for P (no filter) (optional)	3 mm irradiation diameter: automatic switching between four types; 1.2 mm irradiation diameter: 5-element-simultaneous analysis filter or no filter, 100 µm irradiation diameter: no filter
Secondary X-ray Filter		————	Standard equipment for hazardous-elements-in-metal high-sensitivity measurement (ON/OFF automatic switching)
Detector		Nitrogen cooling type of 3 liter (1000WR, 1700WR) high-purity Si detectors	
Stage		————	
Sample Chamber		460×360×150 mm	
Optical Image		Observation by 50X magnification (coaxial) Entire sample image (optional)	
Analysis Functions	Qualitative	Automatic qualitative function, BG display, ROI classification by color, and matching function	
	Quantitative	FPM, analytical curve, hazardous elements (Cl compensation, thickness compensation, and cable compensation), and measurement-function short-cut function	
	Measurement Sequence	Condition setting → measurement → quantitative analysis, all with one button	
	Multilayer Film	Multilayer film FPM (optional)	
Data Management (optional)		Excel® data management software, ecological procurement supporting software, and an inspection report output	
Power Supply		AC100 V、120 V、220 V、240 V ±10%、50/60 Hz	
Power Consumption		1.3 kVA or lower (XGT-1000WR, 1700WR)	
Instrument Weight		approx. 200 kg (XGT-1000WR, 1700WR)	
Outer Dimensions		Analyzing Unit: 610 (W)x750 (D)x500 (H) mm, Signal Processing Unit: 220 (W)x500 (D)x480 (H) mm	
Dimensional Outlines			

1000WR/1700WR



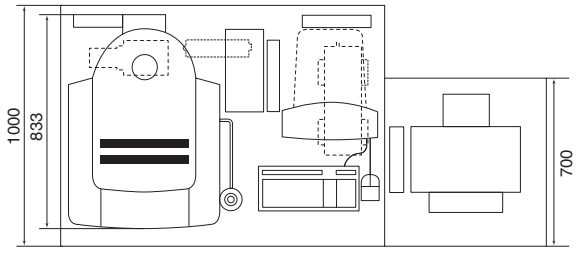
(Japanese Patent No. 2900086) The function which specifies a measuring point of the fluorescence X-ray analysis based on the optical observation image, and irradiates the primary X-ray at this single point is owned

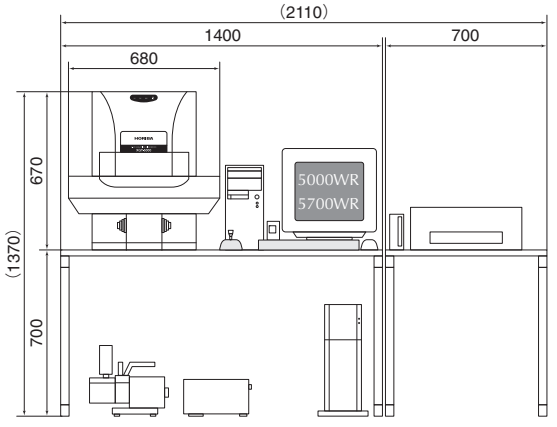
XGT 5000WR

XGT 5700WR

Energy-dispersion-type Fluorescence X-ray Analysis	
Na to U (in sample atmosphere)	
Max 350 mm x 400 mm x 40 mm / Max 100 mm x 100 mm	
Plastic, metal, paper, and liquids such as paint and ink	
Atmosphere	
10 µm+1.2 mm or 100 µm+1.2 mm	10 µm+3 mm or 100 µm+3 mm
50 kV/1 mA, Rh Target	
Standard equipment	
For 5-element-simultaneous analysis(Cd/Pb/Cr/Hg/Br),Automatic switching between maximum of four types, such as for Cd/exclusive for Cr, Cl/for P (no filter) (optional)	3 mm irradiation diameter: automatic switching between four types, 10 µm irradiation diameter: no filter, 100 µm irradiation diameter: no filter
————	Standard equipment for hazardous-elements-in-metal high-sensitivity measurement (ON/OFF automatic switching)
Fluorescence X-ray detector: Nitrogen cooling type of 3 liter (5000WR, 5700WR) high-purity Si detectors Transmission X-ray detector: NaI (Tl) scintillator	
100 mm×100 mm (maximum mapping area), 200 mm×200 mm (optional)	
400×350×40 mm (Additional special order is possible)	
Entire image: 100 x 100 mm (Standard: 400,000 pixels, Optional: 2 million pixels) Detailed image: Observation by 100X magnification (coaxial)	
Automatic qualitative function, BG display, ROI classification by color, and matching function	
FPM, analytical curve, hazardous elements (Cl compensation, thickness compensation, and cable compensation), and measurement-function short-cut function	
Condition setting → measurement → quantitative analysis, all with one button (transplanted function from XGT-1000WR)	
Multilayer film FPM (optional)	
Excel® data management software, ecological procurement supporting software, and an inspection report output	
AC100 V、120 V、220 V、240 V ±10%、50/60 Hz	
1.3 kVA or lower (XGT-5000WR, 5700WR)	
approx. 280 kg (XGT-5000WR, 5700WR)	
Analyzing Unit: 680 (W)x833 (D)x670 (H) mm (XGT-5000WR, 5700WR)	

5000WR/5700WR





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※For Asia, we provide customer support through our representative offices.

HORIBA continues contributing to the preservation of the global environment through analysis and measuring technology.

Please read the operation manual before using this product to assure safe and proper handling of the product.

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