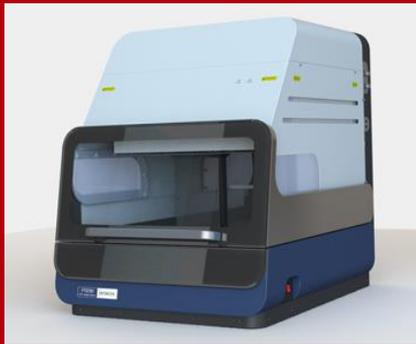


FT230

FT230 Optimum with Closed Chamber

Advanced features for faster coatings and materials analysis

Key features



Simply smarter coatings analysis:

- Rugged XRF coatings and materials analyzer for repeatable and reproducible results in production environments and laboratories.
- Energy dispersive X-ray fluorescence (EDXRF) measurement methods according to ASTM B568 and DIN ISO 3497.
- Measure elements between Al (13) and U (92).
- Tungsten (W) target X-ray tube with maximum 50 kV, 50 W is flexible for a wide range of applications.
- High sensitivity, large area silicon drift detector (SDD).
- Four collimators provide flexibility for measuring features of different sizes.
- Coating thickness and composition can be measured using standardless fundamental parameters or with type standards.
- Fully enclosed sample chamber.
- Motorized XY stage for measurements of multiple points or parts.
- Motorized Z-axis to fit parts of varying heights.

Advanced tools for routine analysis and investigations:

- Automated focusing speeds up setup and ensures easy, repeatable sample presentation.
- Distance independent calibrations allows faster measurement setup.
- Collimator independent calibrations provide flexibility to measure varying feature sizes.
- Statistical display shows performance of on-going production or a batch of measurements.
- Qualitative Mode spectrum evaluation tool with peak identification.
- Create and export results and reports, ready for Industry 4.0.
- Share diagnostics data automatically via Hitachi's ExTOPE Connect cloud-based service.

Protection against damage to X-ray components:

- Large viewing window in chamber door provides visibility of sample and instrument hardware.
- Camera view shows sample position and height of X-ray head.
- 2-phase crash protection stops Z-axis movement in case of possible collision with X-ray components.

Warranty:

- Registered product: 1-year instrument factory warranty.

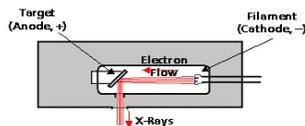
Performance and conformity



Rapid analysis of coating thickness and composition:

- Measure up to 4 layers plus substrate.
- Measure over 25 elements in a material.
- Conform to ASTM B568 and DIN ISO 3497.

X-ray excitation and detection



Micro-focus X-ray tube with Be window:

- Micro-focus Be window X-ray tube delivers improved precision with higher count rate and achieves smaller X-ray beam spot size enabling the analysis of small features.
- Field proven high reliability and outstanding lifetime.
- Tungsten (W) anode target material.

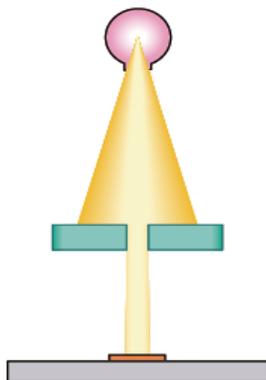
High-resolution, large-area SDD detector:

- High performance silicon drift detector (SDD).
- High resolution at high count rates to improve sensitivity.

Automatic atmospheric compensation:

- Monitor changes to temperature and pressure and automatically applies correction factors to results. Particularly important for measurements of low-energy elements.
- Helps stabilize results in unstable environments.

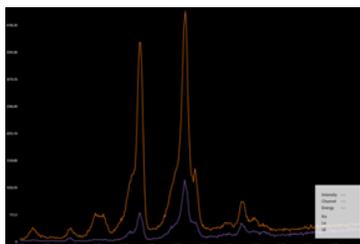
Multi-collimator assembly



Collimator-independent analysis provide flexibility:

- Each collimator block contains 4 apertures of varying sizes and shapes
- Choose the largest appropriate collimator to maximize performance.
- Choose one of the following:
- Multi-collimator block 1: 0.3, 0.5, 0.05 x 0.25, 0.1 mm (12, 20, 2 x 10, 4 mil)
- Multi-collimator block 2: 0.3, 0.5, 0.2, 0.1 mm (12, 20, 8, 4 mil)
- Multi-collimator block 3: 0.3, 0.05 x 0.25, 0.01 x 0.25, 0.1 mm (12, 2 x 10, 0.5 x 10, 4 mil)
- Multi-collimator block 4: 0.3, 0.05, 0.01 x 0.25, 0.1 mm (12, 2, 0.5 x 10, 4 mil)
- Multi-collimator block 5: 0.3, 1, 0.05 x 0.25, 0.1 mm (12, 40, 2 x 10, 4 mil)

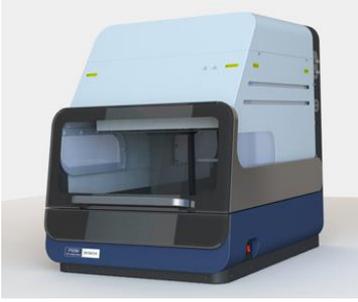
Primary beam filter assembly



Primary beam filters:

- Instrument has 6 selectable primary beam filter positions (2 x Al, Ti, Mo, Ni and open).
- Optimizes excitation condition, enhancing signal to background ratio, improving detection limits.
- Suppresses scattered tube radiation.

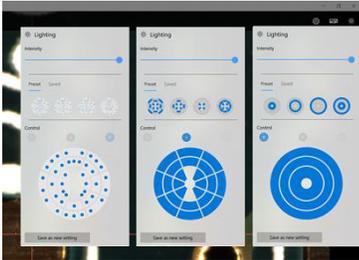
Chamber design



Fully enclosed chamber:

- Allows for tall and bulky parts.
- Door is locked during analysis.
- Positioning laser indicates location of the X-ray tube.
- Motorized Z-axis controls.
- Maximum Z-axis travel 205 mm (8")
- Maximum sample size (W x D x H): 500 x 400 x 150 mm (19.6 x 15.7 x 5.9").

Flexible, configurable chamber lighting



360-degree lighting controls:

- LED lighting arranged around the X-ray beam.
- Toggle on/off and set brightness for rings, sectors or individual LEDs.
- Includes factory preset configurations.
- Save custom settings.

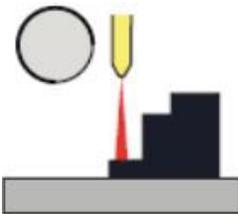
Stage design



Motorized XY stage:

- Programmable base to measure multiple samples or multiple points on a single sample.
- Create and save multi-point measurement programs for routine use.
- Stage travel: 250 x 200 mm (9.8 x 7.8").
- Maximum stage speed: 80 mm/s (3.1"/s).
- Stage precision $\leq \pm 5 \mu\text{m}$.
- Maximum sample weight of 5 kg (11 lb).
- Pre-positioning laser indicates measurement location when the stage is ejected for easier part loading.

Focusing



Three convenient, repeatable ways to ensure samples are properly aligned:

Laser focus:

- Alignment laser shows the user when the instrument is set to the right geometry.

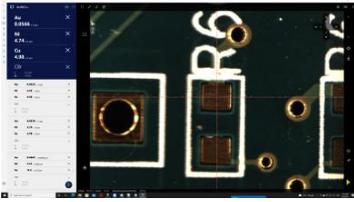
Auto focus:

- Distance independent measurement mode allows measurements at a working distance of 5 – 67 mm (0.2 – 2.6") without changing the position of the analysis head or switching calibrations.

Auto approach:

- Moves the analysis head to a single, pre-defined working distance set in the calibration without the use of a focus laser or relying on the video image.

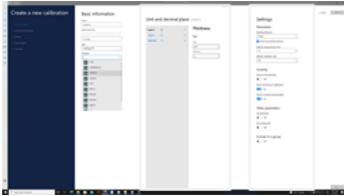
Powerful, easy to use software



Intuitive, comprehensive Windows 10 based user interface improves productivity:

- FT Connect control software powers routine analysis and investigative tools.
- Large display of camera view for easier positioning.
- Results and statistics are displayed clearly.
- Qualitative spectrum evaluation tool with peak identification.
- UI available in 12 languages: Chinese (Simplified), Chinese (Traditional), Czech, English, French, German, Italian, Japanese, Korean, Portuguese, Russian and Spanish
- Displayed on an impressive 4K monitor.

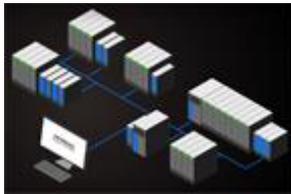
Calibration software



Create calibrations to measure a wide range of materials:

- Coatings analysis using FP and empirical methods.
- Bulk materials analysis (e.g., solder, metal alloys, precious metals) using FP.
- Create application files to use calibrations in predefined measurement routines that include XYZ multipoint programs, collimator size and reporting rules.

Results and report handling



Data handling for Industry 4.0:

- Export results automatically and on-demand from the Measure screen in .csv or .json format.
- Export comprehensive, editable or non-editable reports automatically and on-demand from the Measure screen.
- View result history for a calibration or application from the Measure screen.
- Expand result card for an individual result to see additional details.
- Displays statistics including mean, standard deviation, high, low and Cg, with data trends.

Compact, rugged and robust workstation



Compact workstation:

- Rugged chassis designed for operation in production environments and laboratories.
- Clear chamber and sample view and crash protection reduce the risk of damaging critical X-ray components to avoid downtime.
- Minimal footprint to accommodate oversized samples.
- Monitor sold separately.
- Main instrument dimensions (W x D x H): 600 x 815 x 745 mm (23.6 x 32.1 x 29.3").

Remote diagnostics



ExTOPE Connect cloud-based service:

- Share hardware diagnostics data automatically with Hitachi's engineers.
- Secured connection only transmits diagnostics data; measurement results are not transferred.
- Allows for remote instrument evaluations.
- Assists with troubleshooting.

FT230 Optimum with Closed Chamber summary

Description	Quantity
FT230 Optimum with Closed Chamber	1
Multi-collimator block, programmable	1
Instrument Calibration card	1
Automated focusing (auto focus and auto approach)	1
Windows 10 PC	1

FT230 Optimum with Closed Chamber options

Description

Wide-view camera

Joystick

Find My Part™ smart recognition software

QR/barcode scanner for Find My Part™ software

Signal tower

Solution measurement kit (solution sample holder and pipette)

Calibration and validation standards

Extended warranties & recertification

Description

1 year extended warranty: Includes parts, labor, repairs, 10% off consumables during warranty period.

1 year maintenance package: Includes annual maintenance to be performed at customer agreed interval, travel costs and additional parts may include additional charges at time of maintenance.

2 year extended warranty: Includes parts, labor, repairs, return shipping, 10% off consumables during warranty period.

2 year bundle package: Includes 2 years extended warranty, parts, labor, repairs, 10% off consumables during warranty period, and 2 annual maintenance.

3 year extended warranty: Includes parts, labor, repairs, return shipping, 10% off consumables during warranty period.

FT230 Optimum with Closed Chamber options

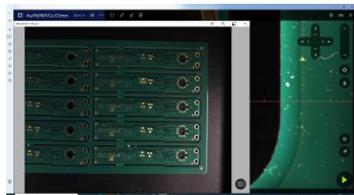
Joystick



External hardware control for positioning parts:

- XY stage and Z-axis controller.
- Variable speed control.
- Integrated measurement start button.

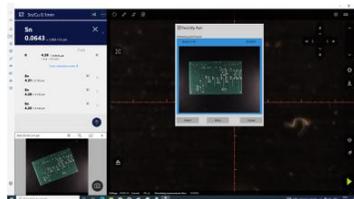
Wide-view camera



See the whole part to quickly move to the right measurement location:

- Image of the sample stage's measurable area allows you to click the feature or sample to be measured and the stage positions it under the X-ray tube.
- Shown next to sample view for detailed positioning to make fine adjustments.
- Makes it easy to quickly create multi-point programs by eliminating the need to search for small details on large or complex samples.

Find My Part™ smart recognition software



Easiest way to start a measurement:

- Use machine vision to recognize a part using the camera.
- Select a measurement routine for a part using text search or scanning a QR or barcode (scanner sold separately).
- Loads all measurement parameters, including locations, calibrations, collimator sizes, measurement times, etc.
- Add new parts to the Parts library.
- Reduces the time needed to measure routine parts.