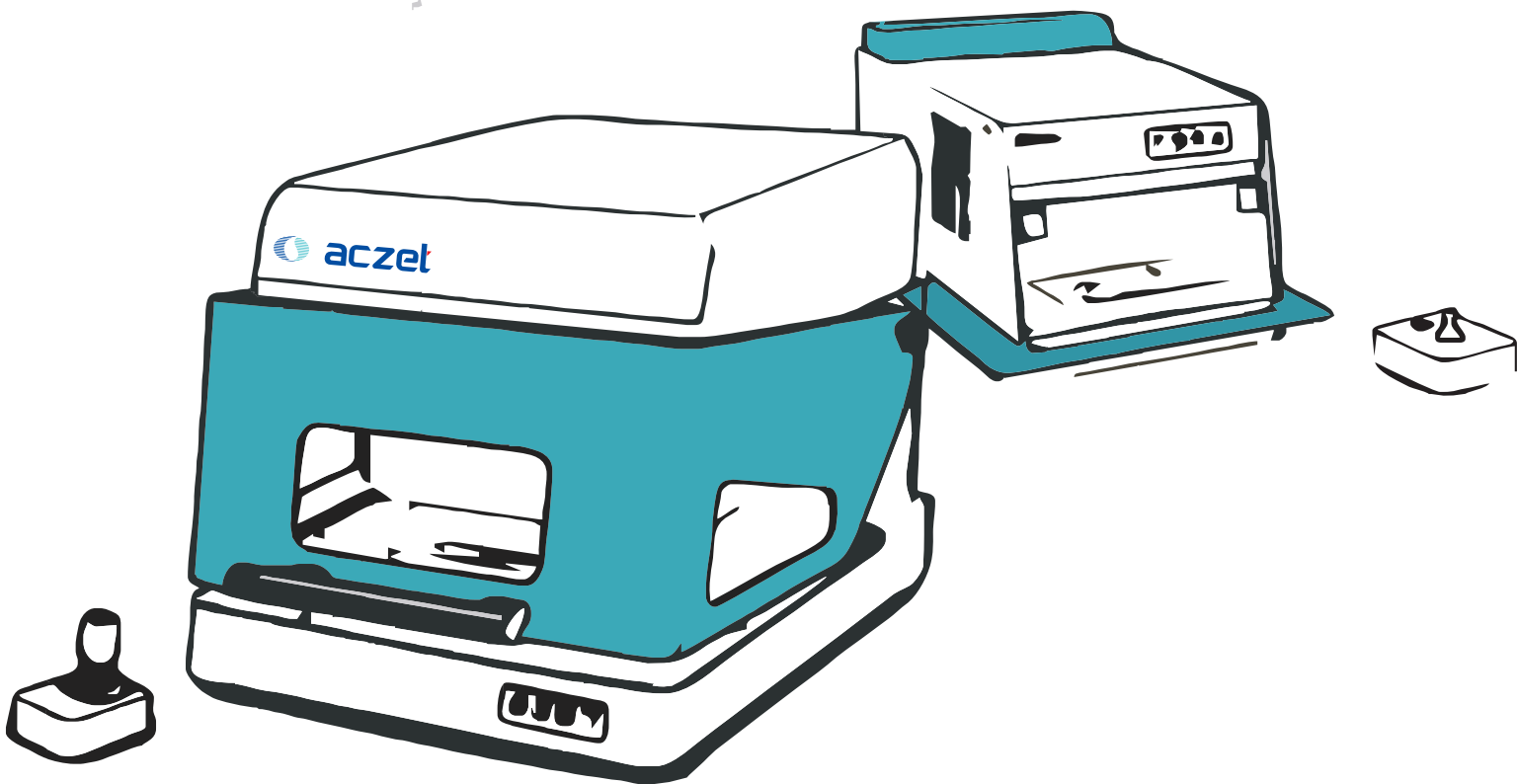




aczel

...since 1986

Coating Thickness Measurement &
Material Analysis

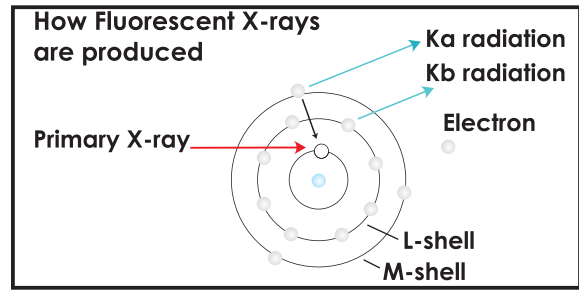
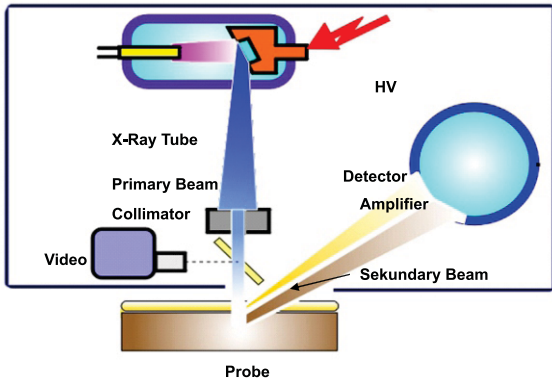


Solution Simplified

www.aczel.com



Principle of X-ray fluorescence method



High energy photons emitted by a X-ray tube interact with metal & materials. The high energy photon is absorbed by an electron of the atom. This electron is accelerated and forced to leave the atom. The so created hole in the structure of the electron shell is filled up by an electron of higher energy. The difference is energy between the leaving electrons position and the filling up electron may leave the atom as a photon of defined energy or as an electron. In the case of a leaving photon this process is called X-ray fluorescent and the energy of the leaving photon is characteristic for this atom therefore for the element. The electron shells of an atom are called K-, L-, M-shell.

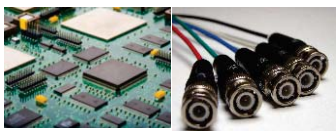
Filling up a hole in the K-Shell creates, K-radiation (Kα if the filling up electron has its origin in the L-shell, Kβ if the filling up electron has its origin in the M-shell). Filling up a hole in the L-shell creates L-radiation and so on. Only K and L radiation is of interest because the energy of K and L radiation is in the region which can be detected with standard detectors.

Cube X and Axiom are XRF are the user friendly bench top instruments designed for material analysis and coating thickness measurements. The X-ray source and detector assembly is located in the instruments' upper chamber with motorized Z axis movement which ensures the ease of measurement. The integrated video microscope with zoom and crosshair simplifies sample placement and allows for a precise measuring spot adjustment.

The entire operation and evaluation as well as clear presentation of measurement data is performed on PC using simple and very user friendly interface on Software.

The instruments are perfectly designed to cater to material analysis and coating thickness measurement of multiple layers in applications as follows

- Electronic and Electrical components
- PCB
- Connectors
- Jewellery
- Liquid Analysis
- Fasteners
- Hardware



Electronics

SAC	Au	
Ni	Ni	Ag
Ag	Cu	Cu
Ceramic	Epoxy	Epoxy

Soldering

Au	Au/Ag	
Ni	PdNi	Ni
Cu-alloy	Cu	Cu

Connectors

NiP
Al

Surface



Jewellery Alloy

% Au	% Cr	% Au
% Ni	% Fe	% Ag
% Cu	% Ni	% Cu
% Zn	% Mo	% Zn

Identification & composition of Jewellery alloy

Quick, non-destructive analysis of jewellery and other alloys



General Metal Finishing

Cr		
Zn	NiP	
Fe	Fe	Fe

Corrosion

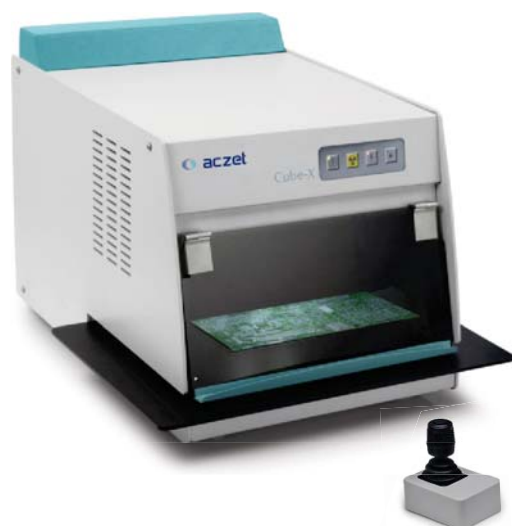
TiN	TiAlN	Cr
Tool-steel	W-carbide	Fe

Wear/Heating

Cr		
Ni	AuCuCd	
Cu	Ni	
Brass	Al	Cu

Cosmetic

Cube /Cube-X



Specifications :

X-Ray Source

X-ray tube

High performing, stable with long life tungsten tube.
Spot size approx. 0.5 x 0.5 mm to assure minimal beam spread

High voltage

50 kV, 1.2mA (60 Watt) high voltage generator, software controlled.

Collimator

Single Collimator 0.3mmØ (optional sizes : 0.1mm, 0.2mm, 0.5mm, 0.7mm)

Detector

Proportional Counter, Si-Pin & SDD

Colour Video microscope

High-resolution CCD color camera for optical monitoring of the measurement location with 20X zoom. Electronic cross hair with scale and beam size indication.

Software

User Friendly, Coating- thickness analysing and operating programmes.
Results and statistic data can be stored in a data file.

There are Three separate modules as follows

1. Evaluation module for coating thickness and composition analysis.
2. Software module for fast and simple qualitative analysis. Up to 20 elements can be identified simultaneously.
3. To generate thickness applications without standards using the Fundamental Parameter calculation method.

Sample Focus

Manual Stage Z axis

Motorised moving head z axis

Optional Enhancement

Laserpointer

Laser emits through the collimator traversing the XRAY path indicating the target spot on the sample very precisely only with collimator >0.3mm

Micro focus X-ray tube

X-ray tube with tungsten target, Be window, stability and longer life, spot 85 x 85µ.
Oil insulated, air cooled, radiation safe tube shielding.

Single collimator 0.1 mm Ø

Multi Collimator

Collimator changer, 6 positions motorised, automatic
0.1mmØ / 0.2mmØ / 0.3mmØ / 0.5mmØ / 0.05 x 0.05mm / 0.05 x 0.25mm

Electrical Data

Power Supply

AC 110V or AC 230V, 50 - 60HZ

Power Consumption

200VA

Usable sample area

100 x 100 mm

450 x 350 mm

Internal Chamber Dimension

330 x 220 x 170 mm (L x W x H)

337 x 248 x 100 mm (W x D x H)

External Dimension (W x D x H)

350 x 450 x 310 mm (L x W x H)

350 x 530 x 320 mm

Axiom



Specifications :

X-Ray Source

X-ray tube

High performing, stable with long life tungsten tube.
Spot size approx. 0.5 x 0.5 mm to assure minimal beam spread

High voltage

50 kV, 1.2mA (60 Watt) high voltage generator, software controlled.

Collimator

Single Collimator 0.3mmØ (optional sizes : 0.1mm, 0.2mm, 0.5mm, 0.7mm)

Detector

Proportional Counter, Si-Pin & SDD

Colour Video microscope

High-resolution CCD color camera for optical monitoring of the measurement location with 20X zoom. Electronic cross hair with scale and beam size indication.

Software

User Friendly, Coating- thickness analysing and operating programmes.
Results and statistic data can be stored in a data file.

There are Three separate modules as follows

1. Evaluation module for coating thickness and composition analysis.
2. Software module for fast and simple qualitative analysis. Up to 20 elements can be identified simultaneously.
3. To generate thickness applications without standards using the Fundamental Parameter calculation method.

Sample Focus

Motorised moving head z axis

Optional Enhancement

Laserpointer

Laser emits through the collimator traversing the XRAY path indicating the target spot on the sample very precisely only with collimator >0.3mm

Micro focus X-ray tube

X-ray tube with tungsten target, Be window, stability and longer life, spot 85 x 85µ.
Oil insulated, air cooled, radiation safe tube shielding.

Single collimator 0.1 mm Ø

Multi Collimator

Collimator changer, 6 positions motorised, automatic
0.1mmØ / 0.2mmØ / 0.3mmØ / 0.5mmØ / 0.05 x 0.05mm / 0.05 x 0.25mm

Sample Stage

Motorised programmable X, Y

Electrical Data

Power Supply

AC 110V or AC 230V, 50 - 60HZ

Power Consumption

200VA

Usable sample area

400 x 420 mm

Internal Chamber Dimension

500 x 489 x 172.5 mm (W x D x H)

External Dimension (W x D x H)

500 x 652 x 500 mm

Compact Eco



Specifications :

X-Ray Source

X-ray tube

High performing, stable with long life tungsten tube.
Spot size approx. 0.5 x 0.5 mm to assure minimal beam spread

High voltage

50 kV, 1.2mA (60 Watt) high voltage generator, software controlled.

Collimator

Single Collimator 0.3mmØ (optional sizes : 0.1mm, 0.2mm, 0.5mm, 0.7mm)

Detector

Proportional Counter, Si-Pin & SDD

Colour Video microscope

High-resolution CCD color camera for optical monitoring of the measurement location with 20X zoom. Electronic cross hair with scale and beam size indication.

Software

User Friendly, Coating- thickness analysing and operating programmes.
Results and statistic data can be stored in a data file.

There are Three separate modules as follows

1. Evaluation module for coating thickness and composition analysis.
2. Software module for fast and simple qualitative analysis. Up to 20 elements can be identified simultaneously.
3. To generate thickness applications without standards using the Fundamental Parameter calculation method.

Optional Enhancement

Laserpointer

Laser emits through the collimator traversing the XRAY path indicating the target spot on the sample very precisely only with collimator >0.3mm

Micro focus X-ray tube

X-ray tube with tungsten target, Be window, stability and longer life, spot 85 x 85µ.
Oil insulated, air cooled, radiation safe tube shielding.

Single collimator 0.1 mm Ø

Multi Collimator

Collimator changer, 6 positions motorised, automatic
0.1mmØ / 0.2mmØ / 0.3mmØ / 0.5mmØ / 0.05 x 0.05mm / 0.05 x 0.25mm

Sample Stage

Motorized Z Stage

Electrical Data

Power Supply

AC 110V or AC 230V, 50 - 60HZ

Power Consumption

200VA

Usable sample area

(Motorised) 240 x 240 mm / **(Manual)** 150 x 150 mm

Internal Chamber Dimension

375 x 350 x 255 mm (L x W x H)

External Dimension (W x D x H)

630 x 430 x 420 mm (L x W x H)

Nanoris



X-Ray Tube	High performing long life X-ray tube.
Excitation source	50KV/200mA maximum pipe flow can be adjusted freely, Ag target (standard), Au, W, Rh target (optional).
Detector	Si-PIN & SDD
Detection Range	All elements between Mg and U. (Almost all elements related to precious metals.)
Display	4.3" Industrial Resistive touch screen. Superb operating system software with sound waves. Automatically adjusts display brightness according to the environment brightness.
Software	A professional FP based software with easily configurable password & customized analysis reports.
Data Processing	32 GB memory. USB, Bluetooth, WIFI or linked to the Internet Data can be exported via EXCEL or PDF.
Heat	Equipped with a dedicated T-shape radiator to dissipation the heat, no need to wait for cooling of detector once again.
Safety	Built-in double beam technology can automatically sense whether there is a sample at the measurement window to avoid any damage. Provided with standard Waterproof, dust-proof and shockproof suitcase & Safety Band for safely use of machine.
Power Supply	Intelligent battery management through MSBUS bus, real-time monitoring of the residual capacity of battery and backup battery. The battery complies with air transport regulations of dangerous goods. A single battery can last 8 hours.
Dimensions	254 x 79 x 280 mm (L x W x H)
Weight	1.6 kg (with battery).



WORLD WIDE MARKETING

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