

Benchtop XRF Machine

Compact ECO Series



**Coating
Thickness**



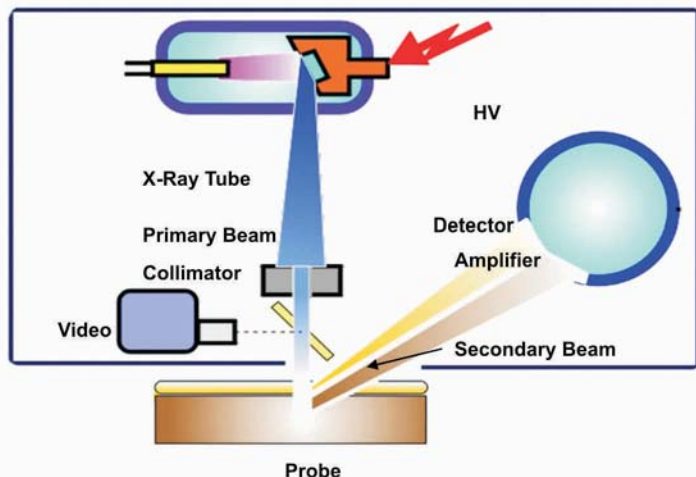
**Material
Analysis**

**GERMAN
TECHNOLOGY**

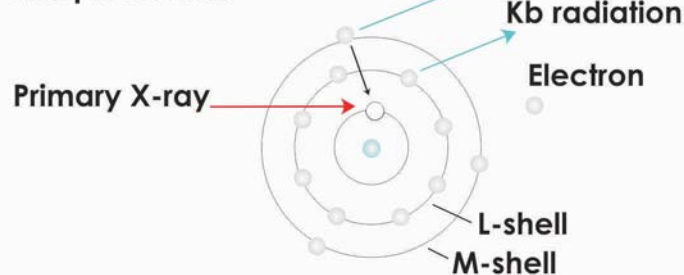


Model	Compact Eco	Compact Eco Pin (Si-Pin)	Compact Eco SDD
Measuring Direction	Top to Bottom		
Applied Application	Coating Thickness Measurement on Metals, Gold & Silver Analysis in jewellery and alloys		
X-ray Tube	Min-focus, high performance, W-target, spot 0.2mm-0.8mm	Long Life, High efficiency tungsten target, air cooled	
High Voltage	50kV (1.2mA) Software Control Optimized	50kV / (1.2mA) programmable	
Detector	High resolution Gas Filled Prop Counter	High resolution Silicon Pin Detector	Silicon Drift Detector
Measurement Time	60 sec. to 180 sec.		
Collimator	0.3mmØ or 0.5mmØ, Optional four positions Collimator changer		
Sample Stage	Manual scissors type z-stage,		
Power Supply	230V AC, 50/60Hz, 120W / 100W		
Inside Chamber	375 mm x 350 mm x 255 mm (LxWxH)		
Dimension	630 mm x 430 mm x 420 mm (LxWxH)		
Weight (Approx)	45 kg		
Optional	Auto Z stage, Joy-Stick real operational movement, point & shoot, auto-focus facility		

Principal of X-ray Measurement



How Fluorescent X-rays are produced



X-ray fluorescence (XRF) spectrometry is an elemental analysis technique with broad application in science and industry. XRF is based on the principle that individual atoms, when excited by an external energy source, emit X-ray photons of a characteristic energy or wavelength. By counting the number of photons of each energy emitted from a sample, the elements present may be identified and quantitated.

Aczet's XRF product is based on a German technology, used to measure the composition and purity of materials and is mainly applied in industrial quality control and in process control for manufacturing processes in industries such as Jewellery, Metals and Mining, Construction materials and Chemicals.

Technology

Different energy dispersive detectors are available for measurements of XRF, such as proportional counters (PC), PIN-diodes and silicon drift detectors (SDD). The physical principles of these detectors are very different. A PC uses a mixture of a noble gas with a quench gas that is ionized by an incident radiation. The electrons are accelerated in the electric field and can ionize other gas atoms resulting in an internal amplification. In this case the energy for generation of the primary signal is relatively high.

In solid state detectors (PIN, SDD), the incident radiation generates charge carriers which are collected by an electrical field. The energy to generate the primary signal is significantly lower than for a PC, i.e. a higher number of primary charge carriers can be generated. This reduces the statistical error and improves the energy resolution.

Proportional Counter Detector

Gas filled proportion counter has distinct advantages like high efficiency, wide bandwidth larger area where it can be scaled to almost arbitrarily large size.

Silicon Detector (Si-PIN)

Based on high resolution **Si-PIN** is used for alloys analyzing including precious metals even one step ahead for accuracy & repeatability compare to Gas filled pro counter.

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Major benefits of XRF

- Versatile testing equipments, potentially solving multiple testing needs with one analyzer.
- Low initial costs compared to other analytical equipment
- Minimum operation costs
- Non-destructive solutions
- Minimal sample preparation
- Instant results 60 to 300 sec.
- Relatively simple technology to learn & obtain accurate, repeatable results.
- Maximum profits through accuracy
- Increase turn around and production output
- In-house quality control

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Aczet's XRF product helps customers to improve product quality and performance, increase productivity, yield and reduce downtime and waste.

The entire operation, the evaluation of the measurement as well as the clear presentation of the measurement data is done on a pc using the powerful and User-friendly Xmaster software.

Features of XMaster Application

X-Master is the user-friendly operating software for the modern suit of X-ray systems. This program used most modern software tools available for Windows® operating platforms. The main task of the operating software is the control of all system parameters such as high voltage settings, X-ray tube current, display of collimators and filters as well as the collection and manipulation of the measurement data.

Capability

- Empirical calibration mode for calibrating unit using well assessed standard samples.
- Fundamental calibration mode for standard free calibrations.
- Simultaneous quantitative measurement up to 8 elements.
- Qualitative material identification upto 20 elements.
- Spectrum analysis for semi-quantitative concentration measurement.
- Statistical functions with mean value, standard deviation, high/low reading, trend line etc.

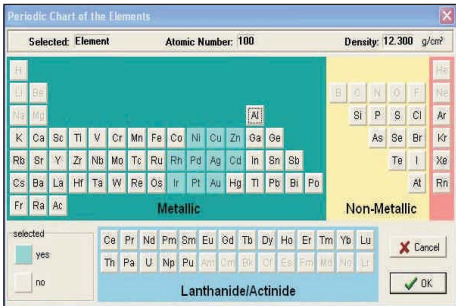
Calibration

- Pre-calibrated for Gold and other precious metals.

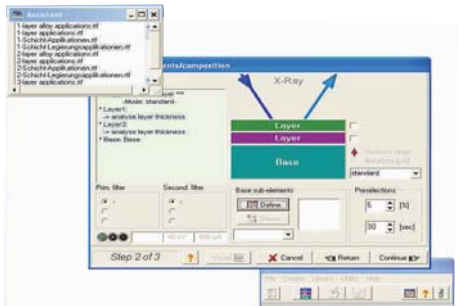
Working of XMaster



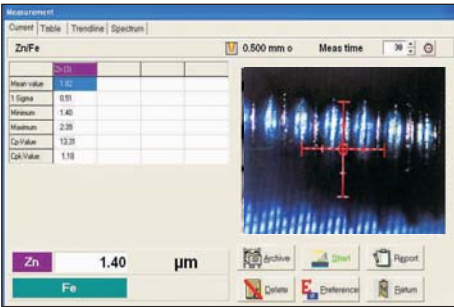
Xmaster Home Page



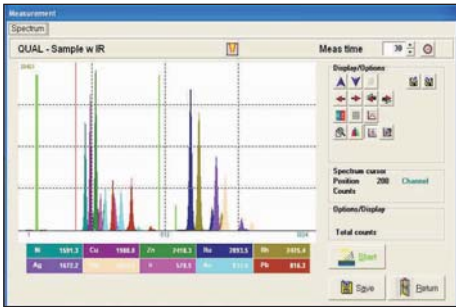
Element Master



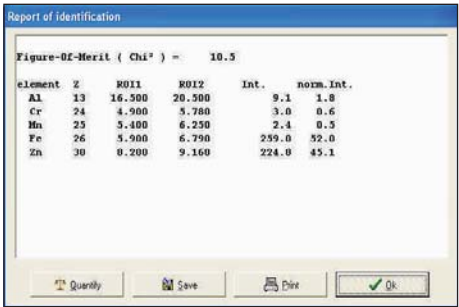
Layer Selection



Micro Master Thickness Report



Spectrum Element Graph



Element Reports

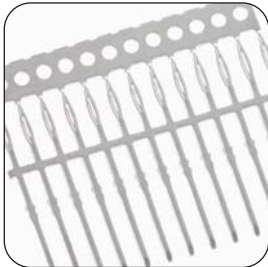
Application



Fasteners



Hardware



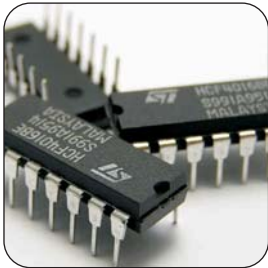
Connectors



PCB



Jewellery



Electronics



Pens



RoHS