

Now slotted!
The most advanced plating thickness measuring instrument.



XRF-330AT X-ray fluorescence surface measurement system.

- Slotted chamber with 12"x16"x1" XYZ-programmable, motorized stage accommodates any size circuit board.
- New system retains outstanding features and benefits of XRF-300 system...confidence in measurement, high yield, repeatability, accuracy.
- XPerit™ Software Package operates under MS-DOS. Advanced user interface, mouse, windows, pull down menus, for ease of use and sophisticated analysis.
- AT-type computer with 1MB RAM, 40MB hard disk, 5¼" and 3½" floppy drives.



- VGA color graphics. Multisync-type monitor.
- Advanced applications support. Foil and hard plate standards.
- On-site service



Leader in
surface measurement
instruments

XRF-330 AT

HARDWARE SPECIFICATIONS

SYSTEM COMPONENTS

CHAMBER

With: • motorized stage joystick • 115V auxiliary power outlet

CHAMBER DIMENSIONS

Exterior: 35.0in (89.0cm) deep x 35.0in (89.0cm) wide x 22.5in (57.0cm) high

Interior: 25in (63.5cm) x 32.5in (82.5cm) x 10.0in (25.4cm)

Door Opening: 8in (20.3cm) x 33in (83.8cm), 3.5in (8.9cm) x 15.5in (39.4cm) leaded glass viewing window

Chamber is slotted on three sides to allow large flat sheets such as circuit boards to be measured regardless of size.

Slit Opening: 1.0in (2.5cm) high x 25in (63.5cm) x 35.0in (89.0cm)

Center of measuring beam to back wall: 12.5in (31.8cm)

Chamber Net Weight: 400 lbs (181.8 kg)

12in (30.5cm) COMPOSITE SAMPLE VIEWING MONITOR

Dimensions: 13in (33.0cm) x 13in (33.0cm) x 14in (35.6cm)

Net Weight: 27 lbs (12.3 kg)

X-RAY ANALYZER AND DISPLAY SYSTEM

Includes: • 80286-based 812MHz "AT" computer with 80287 numerical coprocessor • 40MB hard disk drive • 1.2MB 5 1/4" floppy disk drive

• 1.44MB 3 1/2" floppy disk drive • 2 Parallel ports • 2 Serial ports (RS-232C) • 1MB RAM • Real-time clock • Six Expansion Slots (5 16-BIT, 1 8-BIT) • Microsoft® Mouse • Enhanced keyboard • MS DOS® 3.3 or higher • GV-BASIC® • VGA color graphics adaptor and multisync-type monitor • Interface package (I/O-link board and cables)

Dimensions: Computer: 16.5in (41.9cm) deep x 15in (38.1cm) wide x 6in (15.2cm) high

Multisync-type Monitor: 13in (33.0cm) x 13in (33.0cm) x 14in (35.6cm)

Net Weight: Computer: 48.0 lbs (21.8 kg) Multisync-type Monitor:

27.0 lbs (12.3 kg)

XPerT™ X-RAY FLUORESCENCE SOFTWARE

SYSTEM OPERATION

X-RAY GENERATION

Micro-focus X-ray Tube: • Molybdenum target for optimal efficiency in sample excitation • Focal spot (0.2mm) • Beryllium window for maximum X-ray transmission • High Voltage - 5 to 50kV maximum (16-step programmable high voltage) • Tube Current - 0.2 to 50mA tube current (16-step programmable intensity levels) • Air cooled in sealed, shock and X-ray proof enclosure • Highly stable and spectrally pure X-ray output

Programmable Primary Filter: • Copper primary filter (standard) changes the effective wavelength and intensity of the primary X-ray beam for optimal excitation.

X-RAY COLLIMATION

Programmable linear collimator slide and block assembly with six collimators and four reference standards internally mounted (patent pending). Circular and rectangular collimators.

COLLIMATOR SIZE		EFFECTIVE BEAM AT SAMPLE SURFACE	
MILS	MM	MILS	MM
1	0.025	3	0.075
2	0.050	4	0.10
4	0.10	6	0.15
6	0.15	8	0.20
12	0.30	16	0.40
18	0.45	25	0.63

Linear X-ray shutter block is independent of collimator block movement.

Integrated collimator-mirror carriage assembly (patent pending) ensures cross-hair to beam alignment.

X-RAY DETECTION

• Two programmable motorized filters - for elemental peak separation (cobalt and nickel standard) • Proportional counter: Xenon gas filled

ANALYZER CAPABILITY

• Dead-time correction • Spectroscopy preamp and amp with baseline restoration • Pulse pile-up rejection • 1,024 channel multi-channel analyzer (MCA) • 15,000 counts-per-second processing capability

SAMPLE VIEWING

Constant-view optics - sample is always in view
Variable light intensity halogen lamp with dual fiber optic cable delivery
Dual magnification (40x and 80x) - aids in sample inspection, positioning, and focusing

SAMPLE POSITIONING

STAGE JOYSTICK CONTROL

• All axes (X, Y, and Z) controlled from joystick • diagonal stage movement

Movement: Travel is motorized and programmable in all three dimensions

X = 16in (40.6cm) Y = 12in (30.5cm) Z = 1.0in (2.5cm)

Resolution: X = 0.25 mil (10 µm) Y = 0.25 mil (10 µm) Z = 0.25 mil (10 µm)

Directed light spot marks X-ray beam location on sample to ensure proper measurement positioning

Largest Sample: X: Unlimited; Y: Unlimited; Z: 1.0in (2.5cm)

Largest Completely Measurable Sample: X: Unlimited; Y: 24in (61.0cm) Z: 1.0in (2.5cm)

Largest Programmable Measurable Sample: 16in (40.6cm) x 12in (30.5cm) x 1.0in (2.5cm)

SERVICING

Full diagnostic monitoring coupling real-time hardware sensors with software evaluation • Modular component design • Quick disconnect service panels • On-site service

HARDWARE OPTIONS

• 3x2AT color printer package • Plating bath analysis kit • Auto calibration plate

Power Requirements: 100/120/220/240 System draws 360 watts

XPerT™ X-RAY FLUORESCENCE SOFTWARE SPECIFICATIONS

MEASUREMENT CAPABILITY

AVAILABLE CALIBRATION MODES

LINEAR EXCITATION: Extremely thin coatings (e.g., iron oxide/Al)

EXCITATION: Single layer coatings above atomic number 21 (e.g., Au/Ni, Cu/Brass, Ni/Kovar)

ABSORPTION: Single layer coatings below atomic number 21 on base materials above atomic number 22 (e.g., Al/Kovar)

DUAL LAYER A: Compensates for absorption of middle layer by upper layer. Used when matrix effects are minimal (e.g., Au/Ni/Cu, Pb/Ni/Cu)

DUAL LAYER B: Compensates for matrix effects such as secondary fluorescence and peak overlap (e.g., Au/Ag/Cu, Au/Ni/W)

BINARY ALLOY THICKNESS & COMPOSITION: Thickness and composition of top layer (e.g., In-lead, Pb-Ni, Ni-Fe)

SOLUTION ANALYSIS: Determination of metal content in plating bath solution (e.g., cyanide gold bath)

Numerical (Peak Deconvolution) and Mechanical Filtering: Can be used individually or in combination for the separation of elemental peaks

XTC Mode: For automatic measurements

Counts Mode: For analysis purposes

AUTOMATIC CALIBRATION

Advanced Selection of single and multilayer free standing foil (U.S. Patent #4,546,341) and hard plate standard sets: • Automatic Adjust (Patent Pending) • Automatic Collimator Alignment • Automatic Application Learn Capability • Application Library • Automatic Application Recognition • Standards Library • Calibration File Update • Base Correction • Density Correction

USER INTERFACE

WINDOWS ENVIRONMENT

MOUSE Driven pull down menus deliver the ultimate in operation simplicity

MS-DOS OPERATING SYSTEM

Optional Software packages available: Surfer™ - 2D/3D topographical mapping software • SQCPACK™ - Statistical Process Control software

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