FISCHERSCOPE® X-RAY XULM®-PCB

Specific X-Ray Fluorescence Measuring Instrument for Measurements and Analyses of Coating Thicknesses and Compositions on Printed Circuit Boards

Description

The FISCHERSCOPE X-RAY XULM-PCB is a specific robust entry-level instrument for measurements and analyses of coating thicknesses and compositions on printed circuit boards.

Typical fields of application:

- Measurements on small components and structures on printed circuit boards in sizes up to 610 x 610 mm (24 x 24 in)
- Measurements of functional coatings in the electronics and semiconductor industries
- Determining of the composition of electroplating baths

A high count rate is achieved by using a micro-focus X-ray source and a proportional counter tube, which allows for precise measurements. Outstanding accuracy and long-term stability are characteristics of all FISCHERSCOPE X-RAY systems. The necessity of recalibration is dramatically reduced, saving time and effort.

The fundamental parameter method by FISCHER allows for the analysis of solid and liquid specimens as well as coating systems without calibration.

For measurements on large printed circuit boards and multi-panels, the XULM-PCB can be equipped with a sample stage extension to enlarge the usable sample placement area.

Design

The FISCHERSCOPE X-RAY XULM-PCB is designed as a user-friendly bench-top instrument. The housing features a slot in the side allowing for the measurement of large pc-boards.

A high-resolution color video camera simplifies the precise determination of the measurement spot.

The entire operation and evaluation of measurements as well as the clear presentation of measurement data is performed on a PC, using the powerful and user-friendly WinFTM® software.

The XULM-PCB fulfills DIN ISO 3497 and ASTM B 568. It is a fully protected instrument with type approval according to German radiation protection law.

General Specification

Intended use	Energy dispersive x-ray fluorescence measuring instrument (EDXRF) to determine thin coatings, small structures and alloys
Element range	Potassium K (19) to Uranium U (92) – up to 24 elements simultaneously
Design	Bench-top unit with housing with a slot on the side Fixed sample support
Measuring direction	Bottom up

X-Ray Source

X-ray tube	Micro-focus tungsten tube with beryllium window
High voltage	Three steps: 30 kV, 40 kV, 50 kV
Apertures (Collimators)	Ø 0.1 mm (optional Ø 0.2 mm, slot 0.3 mm x 0.05 mm)
Measurement spot	Depending on the measuring distance and on the aperture, the actual measurement spot size is shown in the video image. Smallest measurement spot: approx. Ø 0.2 mm

X-Ray Detection

X-ray detector	Proportional counter tube
Measuring distance	0 … 27,5 mm (0 … 1.1 in) Distance compensation with patented DCM method for simplified measurements at varying distances. For particular applications or for higher demands on accuracy an additional calibration might be necessary.

Video Microscope

	High-resolution CCD color camera for optical monitoring of the measurement location along the primary beam axis, manual focusing, Crosshairs with a calibrated scale (ruler) and spot-indicator, Adjustable LED illumination
Zoom factor	Digital: 1x, 2x, 3x, 4x

Sample Stage

	Fixed sample support
Usable sample placement area Width x depth	Without extension: 800 x 630 mm (31.5 x 24.8 in) With extension: 1200 x 630 mm (47.2 x 24.8 in)
Max. sample size Width x depth	610 x 610 mm (24 x 24 in) with extension
Max. sample weight	5 kg (11 lb)
Max. sample height	90 mm (3.5 in)

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Electrical data

Power supply	AC 115 V or AC 230 V 50 / 60 Hz
Power consumption	Max. 120 W
Protection class	IP40

Dimensions

External dimensions Width x depth x height	Without extension: 800 x 800 x 560 mm (31.5 x 31.5 x 22 in) With extension: 1200 x 800 x 560 mm (47.2 x 31.5 x 22 in)
Weight	Approx. 86 kg (190 lb)

Environmental Conditions

Operating temperature	10 °C – 40 °C / 50 °F – 104 °F
Storage/Transport temperature	0 °C – 50 °C / 32 °F – 122 °F
Admissible air humidity	≤ 95 %, non-condensing

Evaluation unit

Computer	Windows®-PC
Software	Standard: Fischer WinFTM® BASIC Optional: Fischer WinFTM® PDM®, SUPER

Standards

CE approval	EN 61010, EN 61326
X-Ray standards	DIN ISO 3497 and ASTM B 568
Approval	Fully protected instrument with type approval according to German radiation protection law

Order

FISCHERSCOPE X-RAY XULM-PCB	605-063
Sample stage extension	605-088

Special XULM-PCB product modification and XULM-PCB technical consultation on request

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