# 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 Series 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 X-RAY XULM-PCB Series fulfills DIN ISO 3497 and ASTM B 568.

## General Specification

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|---|---|
| Intended use | Energy dispersive x-ray fluorescence measuring instrument (EDXRF) to determine thin coatings, small structures and alloys |
| Element range | Chlorine (17) to Uranium U (92) – up to 24 elements simultaneously |
| Design | Bench-top unit with housing with a slot on the side<br>Fixed sample support |
| Measuring direction | Bottom up |

## X-Ray Source

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| 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.<br>Smallest measurement spot: approx. Ø 0.2 mm |
| Measuring distance | 0 … 27,5 mm (0 … 1.1 in)<br>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. |

## X-Ray Detection

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| X-ray detector | Proportional counter tube |

## Video Microscope

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

## Sample Stage

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|---|---|
| | Fixed sample support |
| Usable sample placement area<br>Width x depth | Without extension: 800 x 630 mm (31.5 x 24.8 in)<br>With extension: 1200 x 630 mm (47.2 x 24.8 in) |
| Max. sample size<br>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) |

# FISCHERSCOPE® X-RAY XULM®-PCB

## Electrical data

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

## Dimensions

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

## Environmental Conditions

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| 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

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| Computer | Windows®-PC |
| Software | Standard: Fischer WinFTM® BASIC<br>Optional: Fischer WinFTM® PDM®, SUPER |

## Standards

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|---|---|
| CE approval | EN 61010 |
| X-Ray standards | DIN ISO 3497 and ASTM B 568 |
| Approval | Individual acceptance inspection as a fully protected instrument according to the German regulations „Deutsche Röntgenverordnung-RöV“. |

## Order

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| FISCHERSCOPE X-RAY XULM-PCB | 605-063 |

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



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