Data Sheet

FISCHERSCOPE® X-RAY XDAL®-PCB 200

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

FISCHERSCOPE® X-RAY XDAL®-PCB 200

Description

The FISCHERSCOPE X-RAY XDAL-PCB 200 is a specific X-ray fluorescence measuring 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
- Analysis of very thin coatings of ≤ 0.1 µm (0.004 mils)
- Determination of the lead content in solder
- Determination of complex multi-coating systems
- Determining of the composition of electroplating baths
- Direct phosphorus determination of NiP coatings
- Meets ENIG/ENEPIG requirements

To create ideal excitation conditions for every measurement, the instrument features electrically changeable apertures and primary filters. The modern silicon drift detector (SDD) achieves a high accuracy and a good detection sensitivity.

Outstanding accuracy and long-term stability are characteristics of all FISCHERSCOPE X-RAY systems. The necessity of recalibration is considerably 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.

Design

The FISCHERSCOPE X-RAY XDAL-PCB 200 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.

The instrument features an easy sample positioning: The PCB will be roughly positioned with the help of the integrated laser pointer. Then the sample support will be pushed into the instrument similar to a drawer.

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 XDAL-PCB 200 fulfills DIN ISO 3497, ASTM B 568, IPC4552 and IPC4556

Option

Option Sample Stage Extension

With this option the usable sample placement area an be increased to 1200 x 900 mm (47.2 x 35.4 in)

General Specification

Intended use	Energy dispersive x-ray fluorescence measuring instrument (EDXRF) to determine thin coatings, small structures and alloys
Design	Bench-top unit with housing with a slot on the side
Measuring direction	Top down

X-Ray Source

X-ray tube	Micro-focus tungsten tube with beryllium window
High voltage	Three steps: 10 kV, 30 kV, 50 kV
Apertures (Collimators)	4x changeable: Ø 0.1 mm (3.9 mils), Ø 0.2 mm (7.9 mils), Ø 0.3 mm (11.8 mils), slot 0.05 x 0.3 mm (2 x 11.8 mils), others on request
Primary filter	3x changeable. (Standard: Nickel, Aluminum, no filter)
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 0.15 mm (5.9 mils) with aperture 0.1 mm (3.9 mils)

X-Ray Detection	Version SDD 20 mm^2	Version SDD 50 mm^2
X-ray detector	Silicon Drift Detector (SDD), peltier-cooled	
Effective detector area	20 mm^2 (0.03 in^2)	50 mm^2 (0.08 in^2)
Resolution (fwhm for Mn-Kα)	≤ 160 eV	≤ 140 eV
Element range	Aluminum Al (13) to Uranium U (92)	
Measuring distance	0 ... 10 mm (0 ... 0.4 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.	

Sample Stage

Design	Fixed sample support with manual pop out function
Usable sample placement area	600 x 600 mm (23.6 x 23.6 in), with extension: 1200 x 900 mm (47.2 x 35.4 in)
Max. sample weight	5 kg (11 lbs)
Max. sample height	10 mm

Electrical data

Power supply	AC 100 – 240 V ±10 % / 50 – 60 Hz max. 120 VA
Protection class	IP40

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Dimensions

External dimensions Width x depth x height	610 x 750 x 450 mm (24 x 29.5 x 17.7 in) With extension: 1200 x 1050 x 450 mm (47.2 x 41.3 x 17.7 in)
Weight	Approx. 86 kg (190 lbs)

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 including PDM® Optional: Fischer WinFTM® SUPER

Standards

CE approval	EN 61010, EN 61326
X-Ray standards	DIN ISO 3497, ASTM B 568, IPC4552, IPC4556
Approval	Individual acceptance inspection as a fully protected instrument according to German radiation protection law

Order

To create an optimal configuration for your needs, please contact your local Fischer representative.

FISCHERSCOPE® X-RAY XDAL®-PCB 200	▪ Select Detector Type: SDD 20 mm^2 or SDD 50 mm^2
Options	▪ Sample stage extension ▪ Measuring cell for solution analysis Special XDAL®-PCB product modification and XDAL®-PCB technical consultation on request

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