Data Sheet

FISCHERSCOPE® X-RAY XDL® 230

X-Ray Fluorescence Measuring Instrument for Coating Thickness Measurements on Protective and Decorative Coatings, Mass-Produced Parts and Printed Circuit Boards

FISCHERSCOPE® X-RAY XDL® 230

Description

The FISCHERSCOPE X-RAY XDL 230 is a universally applicable energy dispersive x-ray measuring instrument. It is particularly well suited for non-destructive thickness measurements and analysis of thin coatings, for measurements on mass-produced parts and printed circuit boards as well as for the solution analysis.

The instrument is well suited for measurements in quality assurance, incoming inspection and process control.

Typical fields of application:

- Measurement of electroplated mass-produced parts
- Inspection of thin coatings, e.g., decorative chromium-plating
- Analysis of functional coatings in the electronics and semiconductor industries
- Measurements on printed circuit boards
- Solution analysis in the electroplating

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.

A high count rate is achieved by using a proportional counter tube, which allows for precise measurements.

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 XDL 230 is designed as user-friendly bench-top instrument. It is equipped with a manually operable XY-stage and a motor-driven Z-axis.

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

A laser pointer serves as a positioning aid and supports the quick alignment of the sample to be measured.

The housing features a slot in the side allowing for the measurement of even large components, e.g., pc-boards.

The integrated video-microscope with zoom and crosshairs simplifies sample placement and allows precise measuring spot adjustment.

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 FISCHERSCOPE XDL 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 and for the solution analysis.
Design	Bench top unit with upwards opening hood
Measuring direction	Top down

X-Ray Source

X-ray tube	Tungsten tube, thermally stabilized
High voltage	Three steps: 30 kV, 40 kV, 50 kV; max. anode current: 1 mA
Aperture (Collimator)	Ø 0.3 mm (11.8 mils), Optional: Ø 0.1 mm (3.9 mils), Ø 0.2 mm (7.9 mils), slot 0.3 x 0.05 mm (11.8 x 2 mils)
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 (7.9 mils)

X-Ray Detection

X-ray detector	Proportional counter tube
Element range	Titanium Ti (22) to Uranium U (92) – up to 24 elements simultaneously with option WinFTM® BASIC
Measuring distance	0 ... 80 mm (0 ... 3.2 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 Alignment

Sample Alignment	High-resolution CCD colour camera for optical monitoring of the measurement location along the primary beam axis, manual focusing and auto-focus, cross-hairs with a calibrated scale (ruler) and spot-indicator, adjustable LED illumination
Zoom factor	Digital 1x, 2x, 3x, 4x

Electrical data

Power supply	AC 100 – 240 V ±10 % / 50 – 60 Hz max. 180 VA, without evaluation PC
Protection class	IP40

Dimensions

External dimensions	Width x depth x height [mm]: 570 x 760 x 650 mm, [in]: 22 x 30 x 26
Interior dimensions measurement chamber	Width x depth x height [mm]: 460 x 495 x see max. sample height, [in]: 18 x 19.5 x 26 x see max. sample height
Weight	107 kg (235 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

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Sample Stage	
Design	Manual XY-stage
Maximum travel XY	95 x 150 mm (3.7 x 5.9 in)
Usable sample placement area	420 x 450 mm (16.5 x 17.7 in)
Z axis	Electrically adjustable
Travel Z axis	140 mm (5.5 in)
Max. sample weight	20 kg (44 lb)
Max. sample height	140 mm (5.5 in)
Laser pointer (class 1) to support sample placement	Yes

Evaluation unit	
Computer	Windows® PC
Software	Standard: Fischer WinFTM® LIGHT Optional: Fischer WinFTM® BASIC, 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 XDL 230	604-496
	Special XDL® product modification and technical consultation on request

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