FISCHERSCOPE® X-RAY XAN® 250
FISCHERSCOPE® X-RAY XAN® 252

High Performance X-Ray Fluorescence Measuring Instruments for fast and non-destructive Material Analysis and Coating Thickness Measurement

Description

The FISCHERSCOPE X-RAY XAN 250 and XAN 252 are high performance, compact and universally applicable x-ray measuring instruments. They are well suited for the non-destructive coating thickness measurement and material analysis.

The XAN 250 and XAN 252 instruments are especially well suited for measuring and analyzing thin coatings, even with very complex compositions or small concentrations.

Typical fields of application:
- Measurement of functional coatings, starting from a few nanometers, in the electronics and semiconductor industries
- Trace analysis for consumer protection, e.g. lead content in toys
- Analysis of alloys with highest requirements of accuracy in the jewelry and watch industries and in metal refineries
- Research in universities and in the industries

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

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. For high accuracy tasks calibrations can be performed at any time.

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

Design

The XAN 250 and XAN 252 are designed as user-friendly bench-top instruments. They differ in the support stage and the housing size:
- XAN 250: Fixed sample support
- XAN 252: Manually operable XY stage for accurate positioning of small parts and larger measuring chamber

For quick and easy sample positioning, the X-ray source and semiconductor detector assembly is located in the instrument's lower chamber. The measuring direction is from underneath the sample, which is supported by a transparent window.

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 X-RAY XAN 250 and XAN 252 fulfill DIN ISO 3497 and ASTM B 568. The XAN 250 is a fully protected instrument with type approval according to the German regulations „Deutsche Röntgenverordnung-RöV".

General Specification

Intended use	Energy dispersive x-ray fluorescence measuring instrument (EDXRF) to determine thin coatings, trace elements and alloys
Element range	Aluminum (13) to Uranium (92) – up to 24 elements simultaneously
Design	Bench top unit with upwards opening hood
Measuring direction	Bottom up

X-Ray Source

X-ray tube	Micro-focus tungsten tube with beryllium window
High voltage	Three steps: 10 kV, 30 kV, 50 kV
Aperture (Collimator)	4x changeable: Ø 0.2 mm (7.9 mils), Ø 0.6 mm (23.6 mils), Ø 1 mm (39.4 mils), Ø 2 mm (78.7 mils), others on request
Primary filter	6x changeable: Ni, free, Al 1000 µm (39.4 mils); Al 500 µm (19.7 mils); Al 100 µm (3.9 mils); Mylar® 100 µm (3.9mils)
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 0.3 mm (11.8 mils)

X-Ray Detection

X-ray detector	Silicon Drift Detector (SDD), peltier-cooled
Resolution (fwhm for Mn-K_α)	≤ 160 eV
Measuring distance	0 … 25 mm (0 … 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.

Sample Alignment

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

Sample Stage	XAN 250	XAN 252
Design	Fixed sample support	Manually operable XY stage
Usable sample placement area	310 x 320 mm (12.2 x 12.6 in)	
Max. sample weight	13 kg (29 lb)	2 kg (4.4 lb)
Max. sample height	90 mm (3.5 in)	174 mm (6.8 in)

Electrical data

Power supply	AC 115 V or AC 230 V 50 / 60 Hz
Power consumption	max. 120 W, without evaluation PC
Protection class	IP40

FISCHERSCOPE® X-RAY XAN® 250/252

Dimensions	XAN 250	XAN 252
External dimensions Width x depth x height	403 x 588 x 365 mm (16 x 23.2 x 14.4 in)	403 x 588 x 444 mm (16 x 23.2 x 17.5 in)
Weight	Approx. 45 kg (99 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 including PDM®, Optional: Fischer WinFTM® SUPER

Standards	XAN 250	XAN 252
CE approval	EN 61010	
X-Ray standards	DIN ISO 3497 and ASTM B 568	
Approval	Fully protected instrument with type approval according to the German regulations „Deutsche Röntgen-verordnung-RöV“	Individual acceptance inspection as a fully protected instrument according to the German regulations „Deutsche Röntgenverordnung-RöV“.

Order	
FISCHERSCOPE X-RAY XAN 250	604-775
FISCHERSCOPE X-RAY XAN 252	604-776
	Special XAN product modification and technical consultation on request

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