

FISCHERSCOPE[®] X-RAY XAN[®] 250

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



Main Features

The FISCHERSCOPE X-RAY XAN 250 is a high performance, compact and universally applicable x-ray measuring instrument. It is well suited for the non-destructive coating thickness measurement and material analysis.

The XAN 250 is 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 is designed as a user-friendly bench-top instrument.

Specimen positioning is quick and easy. The X-ray source and semiconductor detector assembly is located in the instrument's lower chamber, so that 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 fulfills DIN ISO 3497 and ASTM B 568.

General Specification

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

X-Ray Source

X-ray tube	Micro focus tube with tungsten target and 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 in use, 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 ... 10 mm (0 ... 0.4 in) Distance compensation with patented DCM method for simplified measurements at varying distances. For particular applications an additional calibration might be necessary.

Sample Alignment

Sample positioning	Manually 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 of the measurement location
Zoom factor	Digital 1x, 2x, 3x, 4x

Sample Stage

Design	Fixed sample support
Usable sample placement area	310 x 320 mm (12.2 ... 12.6 in)
Max. sample weight	2 kg (4.4 lb)
Max. sample height	90 mm (3.5 in)

Electrical Data

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

FISCHERSCOPE® X-RAY XAN® 250

Protection class IP40

Dimensions

External dimensions Width x depth x height [mm]: 403 x 588 x 365 mm, [in]: 15.9 x 23.1 x 14.4
Weight approx. 45 kg (99 lb)

Environmental Conditions

Operating temperature 10 °C – 40 °C (50 °F – 104 °F)
Storage 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
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“. Type approval requested.

Order

FISCHERSCOPE X-RAY XAN250 604-775
Special XAN product modification and XAN technical consultation on request

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