FISCHERSCOPE® X-RAY XAN® 220

X-Ray Fluorescence Measuring Instrument for fast and non-destructive Analysis and Coating Thickness Measurement of Gold and Silver Alloys

Main Features

The FISCHERSCOPE X-RAY XAN 220 is an optimized X-ray fluorescence measuring instrument for non-destructive analysis of jewelry, coins and precious metals.

It is particularly suited for the analysis of precious metals and their alloys in composition and coating thickness. Up to 24 elements in the range of Chlorine (17) to Uranium (92) can be determined simultaneously.

Typical fields of application are the analysis of:

- Jewelry, precious metals and dental alloys
- Yellow and white gold
- Platinum and silver
- Rhodium
- Alloys and coatings
- Multi layer coatings

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 modern silicon drift detector achieves high accuracy and good detection sensitivity.

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 220 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 220 fulfills DIN ISO 3497 and ASTM B 568.

General Specification

Intended use	Energy dispersive X-ray measuring instrument (EDXRF) to analyze precious metals and their alloys in composition and coating thickness.
Element range	Chlorine (17) to Uranium U (92) – up to 24 elements simultaneously
Repeatability	≤ 0,5 ‰ for gold, measurement time 60 sec
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: 30 kV, 40 kV, 50 kV
Aperture (Collimator)	Ø 1 mm (39 mils), optional Ø 2 mm (79 mils)
Measurement spot	Aperture diameter plus 200 µm (8 mils), at measurement distance MD = 0 mm

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
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 XAN220	604-771
	Special XAN product modification and XAN technical consultation on request

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