FISCHERSCOPE® X-RAY XAN® 220
FISCHERSCOPE® X-RAY XAN® 222

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

Description

The FISCHERSCOPE X-RAY XAN 220 and XAN 222 are optimized X-ray fluorescence measuring instruments for non-destructive analysis of jewelry, coins and precious metals.

They are particularly suited for the analysis of precious metals and their alloys in composition and coating thickness. Up to 24 elements 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 and XAN 222 are designed as user-friendly bench-top instruments. They differ in the support stage and the housing size:
- XAN 220: Fixed sample support
- XAN 222: 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 220 and XAN 222 fulfill DIN ISO 3497 and ASTM B 568. The XAN 220 is a fully protected instrument with type approval according to the German regulations „Deutsche Röntgenverordnung-RöV".

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	Sulfur (16) to Uranium (92) – up to 24 elements simultaneously
Repeatability	≤ 0.5 ‰ for gold, measurement time 60 sec
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: 30 kV, 40 kV, 50 kV
Aperture (Collimator)	Ø 1 mm (39 mils), optional Ø 2 mm (79 mils) or Ø 0.6 mm (23.6 mils)
Measurement spot	Ø 1.2 mm (47 mils) with aperture Ø 1 mm (39 mils) and flat lying sample (measurement distance 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 … 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 220	XAN 222
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® 220/222

Dimensions	XAN 220	XAN 222
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 220	XAN 222
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 220	604-771*
FISCHERSCOPE X-RAY XAN 222	604-772*

* Includes the Gold Setup 604-512, which contains all calibrated measurement applications necessary for the analysis of jewellery, coins and precious metals

Special XAN product modification and technical consultation on request

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