FISCHERSCOPE® X-RAY XAN® 315

Cost-effective and compact entry-level X-Ray Fluorescence Measuring Instrument for fast and non-destructive Analysis and Coating Thickness Measurement of Gold and Silver Alloys

Description

The FISCHERSCOPE X-RAY XAN 315 is the cost-effective entry-level X-ray fluorescence measuring instrument for non-destructive analysis of jewellery, 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 can be determined simultaneously.

Typical fields of application are the analysis of:
- Jewellery, 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 considerably reduced, saving time and effort.

The modern silicon PIN 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 315 is designed as a user-friendly bench-top instrument. Due to its compact design, the instrument is lightweight and requires only little space. The door of the measurement chamber does not open upwards, but towards the front. Thus, you can place a notebook for operation onto the instrument, which saves even more space.

For quick and easy sample positioning, the X-ray source and 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 for a 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 XAN 315 fulfills DIN ISO 3497 and ASTM B 568.

General Specification

Intended use	Energy dispersive X-ray measuring instrument (EDXRF) to analyse precious metals and their alloys in composition and coating thickness.
Element range	Sulfur (16) to Uranium (92) – up to 24 elements simultaneously
Repeatability	≤ 1 ‰ for gold, measurement time 60 sec
Design	Bench top unit with towards the front opening hood
Measuring direction	Bottom up

X-Ray Source

X-ray tube	Tungsten tube, thermally stabilized
High voltage	Three steps: 30 kV, 40 kV, 50 kV
Aperture (Collimator)	Ø 1 mm (39 mils)
Measurement spot	Ø 1.2 mm (47 mils) with flat lying sample (measurement distance 0 mm)

X-Ray Detection

X-ray detector	Silicon PIN detector with peltier cooling
Resolution (fwhm for Mn-K_α)	≤ 180 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 colour 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

Design	Fixed sample support
Usable sample placement area	320 x 350 mm (12.6 x 13.8 in)
Max. sample weight	13 kg (29 lb)
Max. sample height	115 mm (4.5 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

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Dimensions

External dimensions	Width x depth x height [mm]: 404 x 455 x 367 mm, [in]: 16 x 18 x 14.5
Weight	Approx. 25 kg (55 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

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“.

Order

FISCHERSCOPE X-RAY XAN 315	605-216, 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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