

# FISCHERSCOPE<sup>®</sup> X-RAY XULM<sup>®</sup> FISCHERSCOPE<sup>®</sup> X-RAY XULM<sup>®</sup> XYm

X-ray spectrometer for non-destructive thickness measurement and material analysis on small components



## Main Features

---

The FISCHERSCOPE X-RAY XULM instruments are compact and universally applicable energy-dispersive x-ray spectrometers. They are well suited for non-destructive thickness measurements and material analysis on small components.

To create ideal excitation conditions for every measurement, the XULM features electrically changeable apertures and primary filters.

A high count rate is achieved by using a proportional counter tube, which allows for precise measurements. Using the Fischer fundamental parameter method, coating systems as well as solid and liquid samples can be analyzed standard-free. Elements in the range from chlorine (17) to uranium (92) are detected.

The XULM x-ray spectrometers have an excellent long-term stability, which among other things is reflected in a significantly reduced calibration effort.

The instruments are well suited for measurements in quality assurance, incoming inspection and process control.

Typical areas of application are:

- Measurements on very small parts, plug contacts and wires
- Manual measurements on pc-boards
- Measurements in the jewelry and watch industries

## Design

---

FISCHERSCOPE X-RAY XULM spectrometers are designed as compact, user-friendly bench-top instruments. According to the intended use, different versions are available with different support stages:

XULM: Plane support stage

XULM XYm: Manually operable X/Y stage

A high-resolution color video camera with powerful magnification simplifies the precise determination of the measurement location.

Despite of their compact size, XULM spectrometers are equipped with a large measuring chamber. This allows for measurements on larger specimens.

A gap in the housing allows for measurements on large flat specimens, which do not fit in the measuring chamber, e.g. large pc-boards.

The entire operation, the evaluation of the measurement as well as the clear presentation of the measurement data is done on a PC using the powerful and user-friendly WinFTM® software.

XULM spectrometers are fully protected instruments with type approval according to the German regulations „Deutsche Röntgenverordnung-RöV“.

## General Specifications

Intended use	Energy dispersive x-ray fluorescence spectrometer (EDXRF) for thickness measurement and material analysis
Element range	Chlorine (17) to Uranium (92), up to 24 elements simultaneously with the option WinFTM® BASIC
Design	Bench-top unit with hood opening upwards
Measuring direction	Bottom-up method

## 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)	4x changeable Standard (523-440): Ø 0.1 mm, Ø 0.2 mm, 0.05 x 0.05 mm, 0.2 x 0.03 mm Optional (523-366): Ø 0.1 mm, Ø 0.2 mm, Ø 0.3 mm, 0.3 x 0.05 mm Optional (524-061): Ø 0.1 mm, Ø 0.2 mm, 0.3 x 0.05 mm, 0.05 x 0.05 mm others on request
Primary filter	3x changeable (Standard: Nickel, Aluminum, no filter)
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 0.1 mm with aperture 0.05 x 0.05 mm
Measuring distance, e.g., for measurements in recesses	0 ... 20 mm, in the calibrated range using the patented DCM method 20 ... 27.5 mm, in the non-calibrated range using the patented DCM method

## X-ray detection

X-ray detector	Proportional counter
Absorber	Optional: Cobalt absorber or Nickel absorber

## Sample orientation

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 of the measurement location
Zoom factor	38x ... 184x (optical: 38x ... 46x; digital: 1x, 2x, 3x, 4x)

## Sample support stage

	XULM	XULM XYm
Design	Fixed sample support	Manual X/Y-stage
Maximum travel X/Y	-	50 x 50 mm
Usable sample placement area		250 x 280 mm
Max. sample mass		2 kg
Max. sample height		240 mm

# FISCHERSCOPE® X-RAY XULM®

## Electrical data

Line voltage, line frequency	AC 115 V or AC 230 V 50 / 60 Hz
Power consumption	Max. 120 W (measuring head without PC)
Protection class	IP 40

## Dimensions

Exterior dimensions	Width x depth x height [mm]: 395 x 580 x 510
Weight	45 kg
Interior dimensions measurement chamber	Width x depth x height [mm]: 360 x 380 x 240

## Environmental Conditions

Temperature: Operation	10 °C – 40 °C / 50 °F – 104 °F
Temperature: Storage/Transport	0 °C – 50 °C / 32 °F – 122 °F
Humidity of ambient air	≤ 95 %, non-condensing

## Evaluation unit

Computer	Windows® PC with extension cards
Software	Standard: Fischer WinFTM® LIGHT Optional: Fischer WinFTM® BASIC, PDM®, SUPER

## Standards

CE conformity	EN 61010
X-ray standards	DIN ISO 3497 und ASTM B 568
Approval	Fully protected instrument with type approval according to the German regulations „Deutsche Röntgenverordnung-RöV“

## Order

FISCHERSCOPE X-RAY XULM	603-031
FISCHERSCOPE X-RAY XULM XYm	603-132
	Special XULM product modification and XULM technical consultation on request

FISCHERSCOPE®, XULM®, WinFTM® und PDM® are registered trademarks of Helmut Fischer GmbH Institut für Elektronik und Messtechnik, Sindelfingen - Germany. Windows® is a registered trademark of Microsoft Corporation in the United States and other countries.



**Helmut Fischer GmbH Institut für Elektronik und Messtechnik**, 71069 Sindelfingen, **Germany**, Tel. +49 70 31 30 30, mail@helmut-fischer.de  
**Fischer Instrumentation (GB) Ltd**, Lymington/Hampshire SO41 8JD, **England**, Tel. +44 15 90 68 41 00, mail@fischergb.co.uk  
**Fischer Technology, Inc.**, Windsor, CT 06095, **USA**, Tel. +1 860 683 07 81, info@fischer-technology.com  
**Helmut Fischer AG**, CH-6331 Hünenberg, **Switzerland**, Tel. +41 41 785 08 00, switzerland@helmutfischer.com

**Fischer Instrumentation Electronique**, 78180 Montigny le Bretonneux, **France**, Tel. +33 1 30 58 00 58, france@helmutfischer.com  
**Helmut Fischer S.R.L.**, Tecnica di Misura, 20128 Milano, **Italy**, Tel. +39 0 22 55 26 26, italy@helmutfischer.com  
**Fischer Instruments, S.A.**, 08018 Barcelona, **Spain**, Tel. +34 9 33 09 79 16, spain@helmutfischer.com  
**Helmut Fischer Meettechniek B.V.**, 5627 GB Eindhoven, **The Netherlands**, Tel. +31 40 248 22 55, netherlands@helmutfischer.com  
**Fischer Instruments K.K.**, Saitama-ken 340-0012, **Japan**, Tel. +81 4 89 29 34 55, japan@helmutfischer.com  
**Fischer Instrumentation (Far East) Ltd**, Kwai Chung, N.T., **Hong Kong**, Tel. +852 24 20 11 00, hongkong@helmutfischer.com  
**Fischer Instrumentation (S) Pte Ltd**, Singapore 658065, **Singapore**, Tel. +65 62 76 67 76, singapore@helmutfischer.com  
**Nantong Fischer Instrumentation Ltd**, Shanghai 200333, **P.R. China**, Tel. +86 21 32 51 31 31, china@helmutfischer.com  
**Fischer Measurement Technologies (India) Pvt. Ltd**, Pune 411036, **India**, Tel. +91 20 26 82 20 65, india@helmutfischer.com

www.helmut-fischer.com

**fischer®**