

FISCHERSCOPE® X-RAY XUL® FISCHERSCOPE® X-RAY XUL® XYm

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



Main Features

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

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 XUL 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 small parts like screws, bolts and nuts
- Measurements on contacts and electronic components
- Solution analysis in the electroplating

Design

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

XUL: Plane support stage

XUL 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, XUL 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..

XUL 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	Tungsten tube, thermally stabilized
High voltage	Three steps 30 kV, 40 kV, 50 kV
Aperture (collimator)	Ø 0.3 mm, (optional: slot 0.3 mm x 0.05 mm)
Measurement spot	Depending on the measuring distance and on the aperture, the actual measurement spot size is shown in the video image. Smallest measurement spot: approx. Ø 0.51 mm
Measuring distance	0 ... 20 mm, in the calibrated range using the patented DCM method
e.g., for measurements in recesses	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

	XUL	XUL 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

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

FISCHERSCOPE® X-RAY XUL®

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 and ASTM B 568
Approval	Fully protected instrument with type approval according to the German regulations „Deutsche Röntgenverordnung-RöV“

Order

FISCHERSCOPE X-RAY XUL	603-029
FISCHERSCOPE X-RAY XUL XYm	603-131
	Special XUL product modification and XUL technical consultation on request

FISCHERSCOPE®, XUL®, WinFTM®, 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.

05-09

04/10

952-074



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®