MasterXRF® Inline Solution Analyzer

The X-Ray Sensor MasterXRF® instrument is an X-ray fluorescence spectrometer for the inline analysis of plating solutions in the electroplating industry. It is the ideal instrument for industrial process control, improving product quality, and saving money.

The instrument allows for the continuous, fully automatic monitoring of metal concentration in plating baths such as alkaline or acidic ZnNi , Cr and Co passivation solutions , as well as elemental Cr, Fe ,Ni, Cu, Zn, Pd, Ag, Sn and Au. Up to four separate plating lines can be measured sequentially with the option to set up individual measurement programs for each line.

The solution can be pumped directly from the plating tank that connects to the instrument's measurement tubing. This unique design eliminates the need for a specific solution measuring cell or a manifold assembly requiring flushing or cleaning of the solution lines. The instrument is virtually maintenance free and operates through an easy-to-use, touch screen interface. Quantification is accomplished utilizing a state-of-the-art fundamental parameter (FP) software.

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Technical Specifications

Element range	Chlorine (Cl, 17) to Uranium (U, 92) (up to 55 elements simultaneously)
Design	Fully enclosed X-ray system with mechanical positioning mechanism for up to 4 measurement positions

Dimensions

External Dimensions	Instrument only : 400 x 490 x 170 mm (15.7 x 19.3 x 6.7 in)
W x H x T	Instrument + Enclosure : 800 x 1000 x 300 (31.5 x39.4 x 11.8)
Weight	14 kg (31 lb) + 39 Kg (86 lb) enclosure

X-ray Source and Detection

X-ray tube	Low Power X-ray tube 4W with Rh or W target
High voltage	Three settings: 30 kV; 40 kV; 50 kV
Primary filter	Changeable: Al 250 µm; Al 500 µm Al 750 µm
Collimator	1 or 2 mm Ø
X-ray detector	Silicon-drift-detector (SDD)
Detector area	20 mm²
Detector resolution	FWHM < 130 eV (at Mn-Kα)

Electrical and Environmental data

Power supply	AC 100-240 V 50 -60 Hz
Power consumption	≤ 70 VA

Environmental conditions

Operating temperature	10°C – 50°C (50°F – 104°F)
Storage temperature	0°C – 50°C (32°F – 122°F)

Standards

CE approval	EN 61010 , EN 61326
X-ray standards	DIN EN ISO 3497, ASTM B 568
Approval	Individual acceptance approval per §12 StrlSchG (German radiation ordinance) Complies to US Standard ANSI/HPS N43.3 Radiation Safety for X-ray diffraction and fluorescence analysis equipment