



Advanced XRF Technology for Precision Plating Measurement



- › Plating Thickness
- › Elemental Analysis
- › Solution Analysis

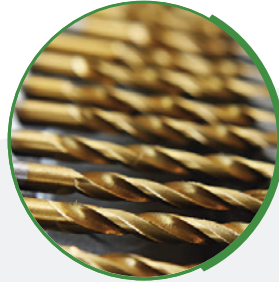
Superior Technically.
Supported Locally.

Bowman XRF Technology

is Widely Used Throughout Industry



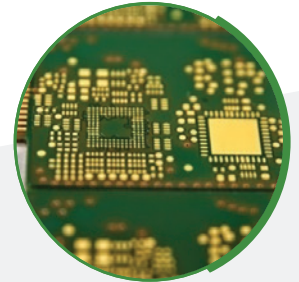
Automotive components



Cutting tools



Fasteners



PCBs, wafers, leadframes

Automotive

- Cr/Ni/Cu/ABS
- Zn/Fe

Printed Circuit Boards

- Au/ENi/CuPCB (ENIG, ENEPIG)
- Immersion Ag or Sn/CuPCB

LeadFrames and Connectors

- Au/Pd/Ni/Cu Alloys
- Au/Ni/NiFe

Fasteners

- ZnFe/Fe
- ZnNi/Fe

Cutting Tools

- TiCN/WCo
- TiAlN/WC

Hardware and Plumbing Fixtures

- Ni/Cu
- Cr/Ni/Cu/Zn

Telecommunications and Data Storage

- NiP/Al

Jewelry

- 10, 14, 18, 22Kt

Elemental Analysis

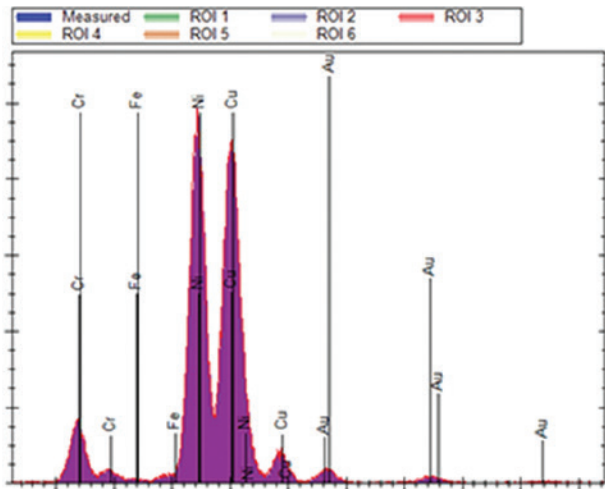
- Alloy sorting
- Contaminant ID

Solution Analysis

- Plating bath

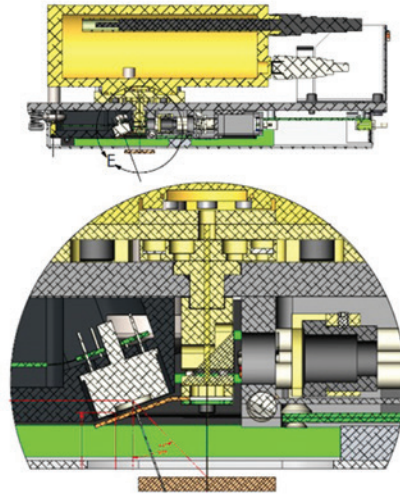
Bowman instruments meet all applicable IPC specifications, including 4552-A.

➤ State-of-the-art



High Resolution Solid State Detector

Well-defined element peaks eliminates need for secondary filters. Minimal peak position drift provides high stability over time. Less frequent recalibration.



Close-Coupled Geometry

3 times closer to sample than major competitors for increased precision and power efficiency.



G Series



P Series



L Series

Bowman has a chamber size for every application.

XRF Design



Intuitive User Interface

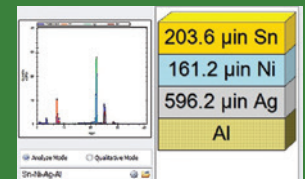
- Simple design for daily testing functions
- Advanced functionality access to power users
- Password protection for all user levels
- Unlimited access for creating new applications
- All readings automatically saved to PC database
- Data searchable by job query (Lot #, PO #, etc.)
- Customizable one-click report generator
- Export report in several formats (PDF, CSV, etc.)
- Full software suite included standard

Service-Friendly Design

Quick plug-and-play access to the main measurement head for quick repair or replacement to minimize downtime.

Ergonomic Work Station

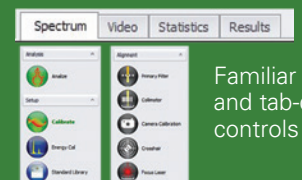
- Basic front control panel
- Small footprint
- Lightweight
- One USB cable connection



Colorful & informative data output display



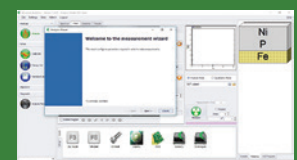
Customizable shortcut keys for quickly changing applications



Familiar icon and tab-driven controls



Custom report with stats and auto sample image capturing



Wizard-based application setup menu

Advanced Thin Film Measurement Using μ -Spot Poly Capillary Optics

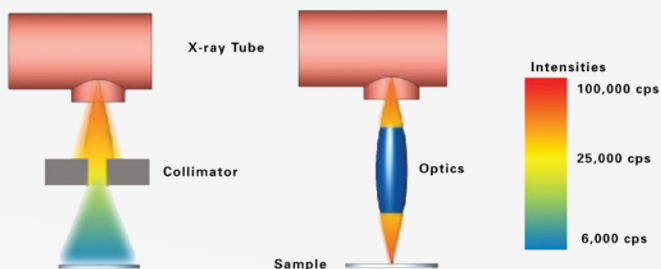
This cutting edge XRF instrument features a small spot, high flux x-ray beam and a large window Silicon Drift Detector for unmatched speed, precision and performance.



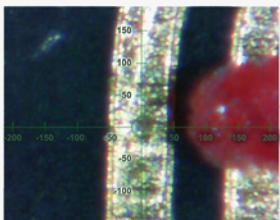
- Poly-capillary optics achieves greater than a hundred times higher flux than a collimation system at the same distance from the source.
- Small feature analysis provides ultimate accuracy and precision in the shortest test time.
- Designed for ENIG, ENEPIG and Electroless Nickel %P analysis

	$\mu\text{m Au}$	$\mu\text{m Pd}$	$\mu\text{m Ni}$	$\mu\text{m NiP}$	%P
Ave	0.0427	0.08	3.71	10.2015	10.17
StdDev	0.00045	0.0009	0.00985	0.1089	0.29
Range	0.0015	0.003	0.0395	0.3863	0.99
%RSD	1.053%	1.121%	0.265%	1.067%	2.85%

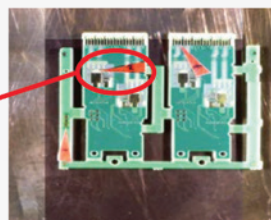
The Bowman Optics Advantage



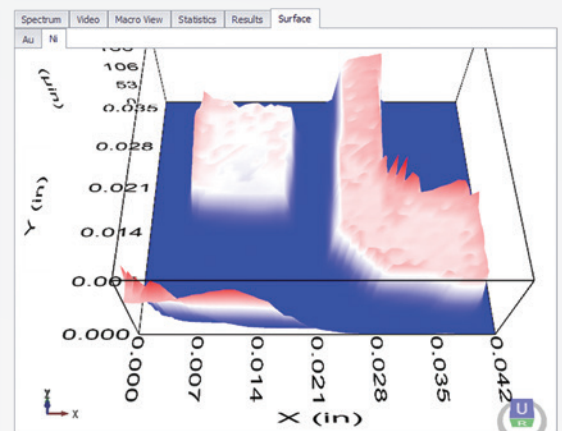
Micro View



Macro View



2x Macro to 250x
Micro - Dual camera
– single click to
achieve 250x



3D Contour Map with continuous scanning

Configurations for every **measurement requirement**

G SERIES Gold and precious metal analysis in the jewelry industry

B SERIES Electroplated parts; an ideal entry level instrument for GMF

P SERIES Coatings for electronics, semiconductor and general metal finishing, also gold and jewelry

O SERIES Semiconductors and electronics

M SERIES Semiconductors and electronics with small spot size requirements

L SERIES Electroplated coatings on larger hardware, fasteners, bathroom fixtures

	G Series	B Series	P Series	O Series	M Series	L Series
Tube						
Micro-Focused X-ray Anode	W	W	W/Mo/Rh	Mo/Rh	Mo/Rh	W/Mo/Rh
X-ray Path	Bottom Up	Top Down	Top Down	Top Down	Top Down	Top Down
Detector						
Si PIN Detector	Standard	Standard	Standard	N/A	N/A	Standard
Si Drift Detector	Optional	Optional	Optional	Standard	Standard	Optional
Beam Size						
Single Collimator	Standard	Standard	N/A	N/A	N/A	N/A
Multi-Collimators	N/A	Optional	Standard	N/A	N/A	N/A
Capillary Optics FWHM	N/A	N/A	N/A	80um	15um	Optional
Focal Depth						
Focus Laser	Standard	Standard	Standard	Standard	Standard	Standard
Single Fixed Focal Depth	Standard	Standard	N/A	Standard	Standard	N/A
Multi-Variable Focal Depths	N/A	Optional	Standard	N/A	N/A	Standard
Video Magnification						
20x	Standard	Standard	Standard	N/A	N/A	Standard
50x	N/A	Optional	Optional	Standard	N/A	Optional
250x Dual Macro Camera	N/A	N/A	N/A	Optional	Standard	Optional
Stage & Chamber Dimensions						
Z Control	Manual	Automatic	Automatic	Automatic	Automatic	Automatic
Z Travel	N/A	5.2"	5.2"	5.2"	5.2"	10"
Base	N/A	Fixed	Programmable	Programmable	Programmable	Programmable
Standard XY Travel	N/A	N/A	5x6"	5x6"	6.5x6.5"	10x10"
Optional XY Travel	N/A	N/A	10x10"	10x10"	N/A	N/A
Precision	N/A	N/A	0.0004"	0.0004"	0.0001"	0.0004"
Chamber Dimensions HWD	5x15x12"	5.5x12x13"	5.5x12x13"	5.5x12x13"	5.4x12x13"	11x22x24"
Total Weight	25Kg	34kg	52-70kg	52-70kg	70kg	110kg

Superior Technically. Supported Locally.

➤ **Bowman is a world-leading manufacturer** of precision XRF coating measurement systems, with a robust local service network to support every system, at each customer location, worldwide.

Our mission is to support you during every phase of your system's lifecycle – from system evaluation, selection, and commissioning, through maintenance and modernization.

➤ **Bowman service partners** provide comprehensive, same-day service response for every need; we also work with customers to streamline their testing processes, and to generate the qualitative and quantitative information that's required, in less time.

➤ **Our commitment:** to deliver support solutions tailored to the needs and quality culture of each individual customer, so that, with each subsequent XRF system purchase, there is no question... that the system will be a Bowman.



The Bowman Team: 30 Years of History, Innovation and Industry Recognition

<p>Improved plated thru hole measurement using patented micro-resistance probes</p>	<p>Developed first slotted Coating Measurement XRF using PC detector</p>	<p>First to introduce point and shoot positioning, with laser focus</p>	<p>Improved the stability and extended the lifetime of micro spot X-ray tube</p>	<p>Launched new product: Bowman Poly Capillary Optics XRF with Si Drift Detector</p>						
1985	1987	1988	1990	1993	1995	2002	2009	2012	2014	2017
<p>Founded CMI International</p>	<p>Introduced first handheld plated thru hole gauge using eddy current</p>	<p>Launched first instrument operated by a stand-alone desktop computer</p>	<p>Deployed Fundamental Parameters (FP) based coating measurement</p>	<p>Launched new product: Bowman XRF with Si PIN detector</p>	<p>NPI Award: Bowman μ-spot Poly Capillary Optics XRF with SDD for smaller spot sizes</p>					



Made in the USA

Bowman
1125 Remington Rd.
Schaumburg, IL 60173

➤ 847.781.3523
➤ www.bowmanxrf.com
➤ sales@bowmanxrf.com

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