

# Advanced XRF Technology for Precision Plating Measurement



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

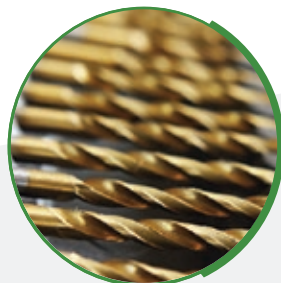
Superior Technically.  
Supported Locally.

# Bowman XRF Technology

is Widely Used Throughout Industry



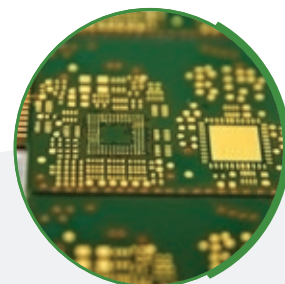
Automotive components



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

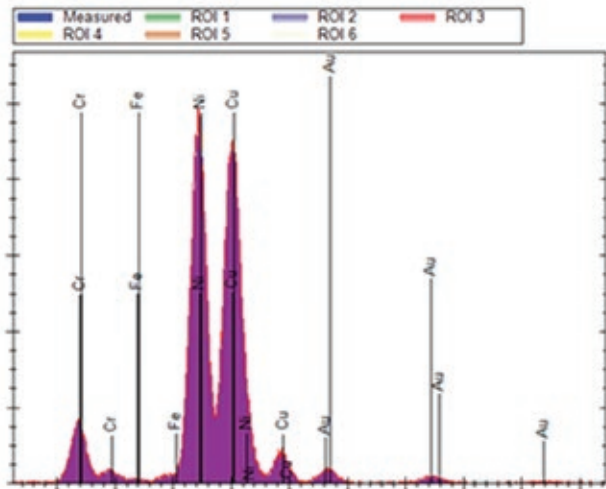
## Solution Analysis

- Plating bath

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

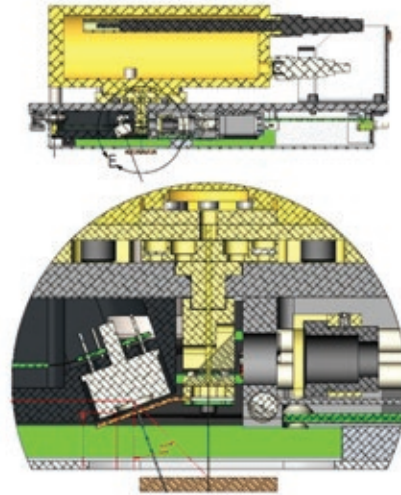


# ➤ State-of-the-art



## 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

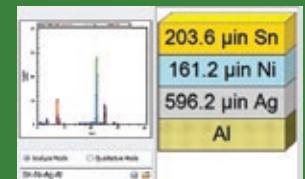
Quick plug-and-play access to the main measurement head for quick repair or replacement to minimize downtime.

## Ergonomic Work Station

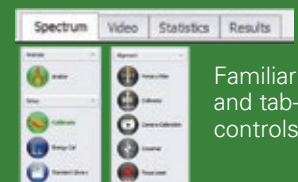
- Basic front control panel
- Small footprint
- Lightweight
- One USB cable connection



Customizable shortcut keys for quickly changing applications



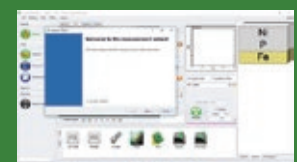
Colorful & informative data output display



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 $\mu$ -Spot Poly Capillary Optics

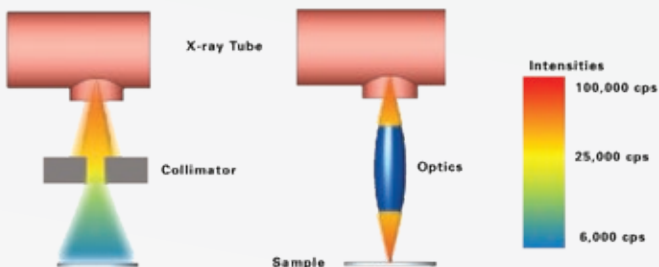
This cutting edge XRF instrument features a small spot, high flux x-ray beam and a large window Silicon Drift Detector for unmatched speed, precision and performance.



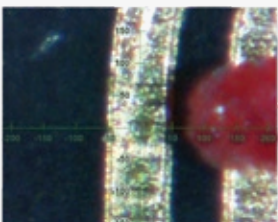
- Poly-capillary optics achieves greater than a hundred times higher flux than a collimation system at the same distance from the source
- Small feature analysis with ultimate accuracy and precision in the shortest test time
- Designed for ENIG, ENEPIG and Electroless Nickel %P analysis

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

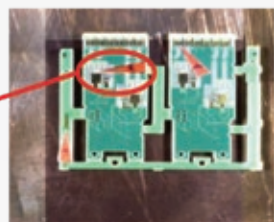
### The Bowman Optics Advantage



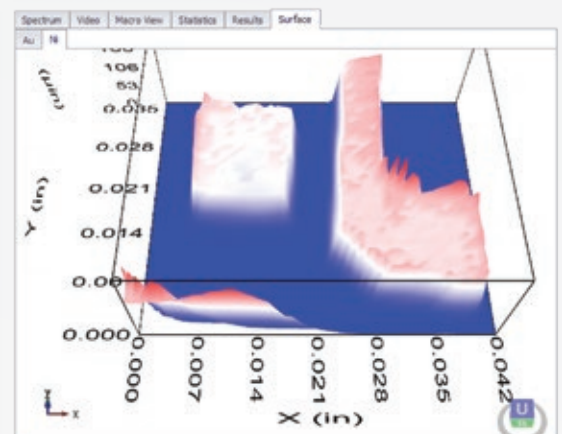
Micro View



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
<b>Tube</b>						
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
<b>Detector</b>						
Si PIN Detector	Standard	Standard	Standard	N/A	N/A	Standard
Si Drift Detector	Optional	Optional	Optional	Standard	Standard	Optional
<b>Beam Size</b>						
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
<b>Focal Depth</b>						
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
<b>Video Magnification</b>						
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
<b>Stage &amp; Chamber Dimensions</b>						
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"
<b>Total Weight</b>	<b>25Kg</b>	<b>34kg</b>	<b>52-70kg</b>	<b>52-70kg</b>	<b>70kg</b>	<b>110kg</b>

# 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.

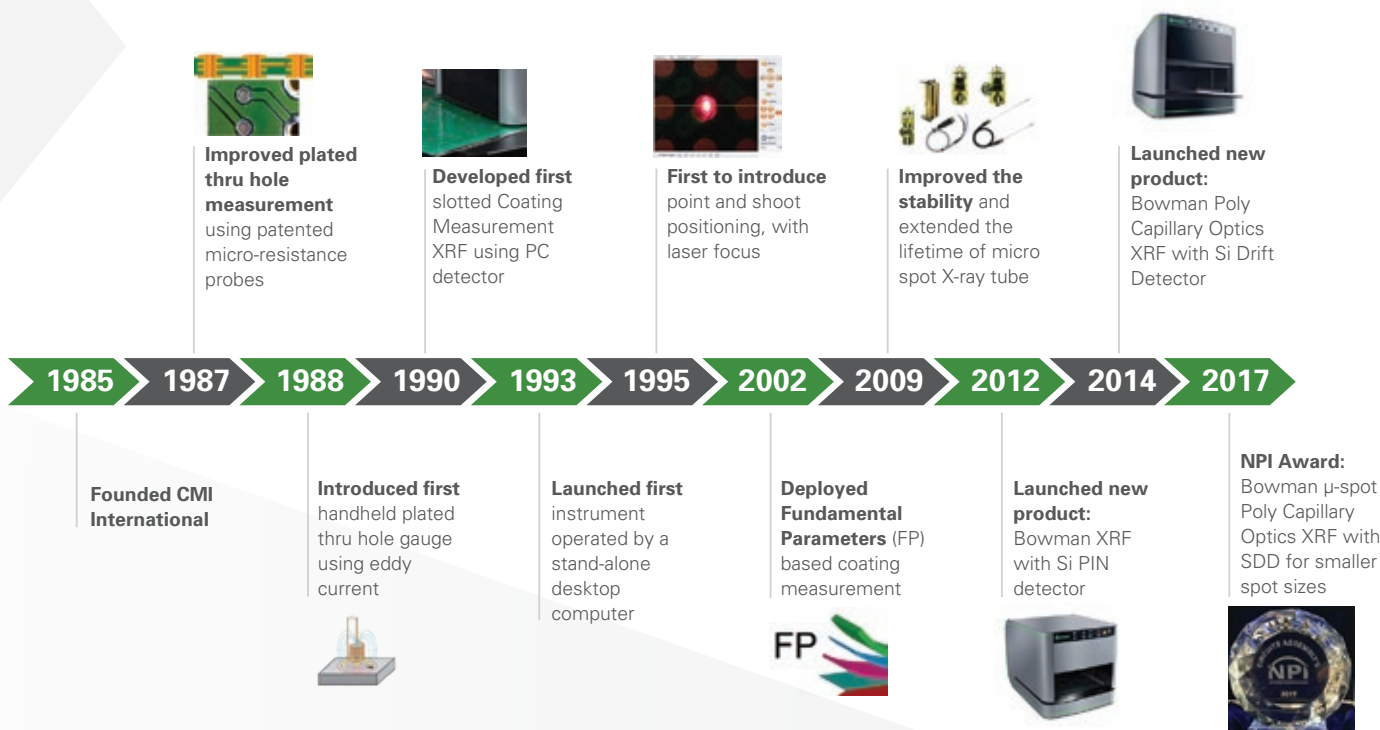
Our mission is to support you during every phase of your system's lifecycle – from system evaluation, selection, and commissioning, through maintenance and modernization.

➤ **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



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