

EVIDENT



Vanta™ Handheld XRF Analyzer

Material Verification for Aerospace, Aviation,
and New Space

Verify Mission-Critical Aerospace Components

In precision manufacturing of aerospace components, it is essential to verify incoming material. Fast, accurate alloy chemistry and grade identification against supplier material test reports (MTRs) can prevent costly material mix-ups. Handheld X-ray fluorescence (XRF) enables you to verify that you are using the right material in the right place.



Know Your Materials

Quickly Verify Incoming/Outgoing Metals and Alloys



Easy to Use

Smartphone-like operation: swipe, flick, and tap. Customize home screen buttons for frequently used operations.



Durable

All Vanta™ models are built to pass a 4-foot drop test (MIL-STD-810G) to withstand typical forces in manufacturing environments.



Comprehensive Metals Database

Use the Vanta analyzer's extensive alloy library—including the preloaded Aerospace Materials Specification (AMS) grades—to identify the chemical makeup of 500+ alloys for fast verification of material compliance.



Data Management & Reporting

Instantly export analysis results through optional wireless connectivity, the Olympus Scientific Cloud™, or a USB flash drive.

Customize data labels and exports with Vanta PC software.



Barcode Scanner

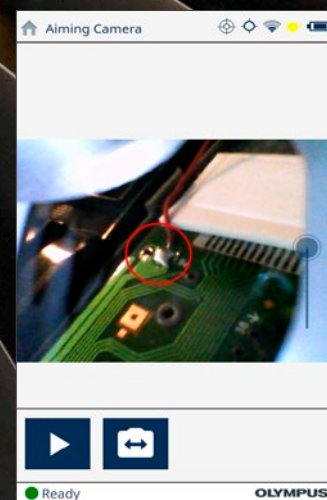
Correlate Vanta data and sample tracking with built-in barcode scanning using the optional panoramic camera.

El	%	+/-	316
Cr	17.367	0.042	16.00 - 18.00
Ni	11.004	0.046	10.00 - 14.00
Mo	2.195	0.007	2.00 - 2.90
Fe	68.123	0.059	61.28 - 72.00
Mn	1.123	0.025	0.00 - 2.00
V	0.067	0.006	Resid. 0.2

Comprehensive material database

El	%	+/- 2σ	AL 2024
Al	92.69	0.23	91.00 - 94.70
Cu	4.41	0.12	3.80 - 4.90
Mg	1.44	0.20	1.20 - 1.80
Mn	0.626	0.036	0.30 - 0.90
Fe	0.343	0.023	0.00 - 0.50
Si	0.249	0.026	0.01 - 0.50
Zn	0.097	0.007	

Quickly scan incoming materials



The Vanta analyzer's optional onboard aiming camera and small-spot collimator enable precise testing of small, intricate components.

Common Aerospace Applications for XRF Analysis

Alloy Grade Match

- Confirm alloy composition and perform positive material identification (PMI) to maintain quality standards for incoming material and outgoing products
- PMI helps ensure that incoming materials meet the manufacturer's alloy and grade specifications
- The Vanta™ analyzer features a large library of commercial aviation and aerospace alloy grades; easily add specialty or proprietary grades to the grade library
- Its user interface shows clear pass/fail results for the grade, as well as full material chemistry for reporting and traceability

Research and Development

- With the development of newer and lighter alloys and composites, it is essential to understand materials' chemical composition
- The Vanta analyzer's intuitive user interface generates fast reports for swift material identification

Turbine Blade Chemistry

- Verifying turbine blade chemistry aids compliance with manufacturer specifications and helps ensure component durability
- Using the Vanta analyzer's extensive alloy library, identify the chemical makeup of 500+ alloys for fast verification of material compliance

Reverse Engineering

- When material test reports (MTRs) or original material specs are unavailable, on-the-spot material identification speeds up the production, repair, or rebuild timeline
- XRF's nondestructive, real-time analysis provides full material composition for insights into both failure mechanism and component redesign
- Properly match materials using the Vanta analyzer's library of 500+ alloy grades, including aviation-specific alloys

Engine Shroud Inspections

- Incorrect alloy composition within the engine shroud could cause premature wear or catastrophic failure of turbine blades
- Accurate alloy identification during manufacturing helps ensure engine shrouds meet engineering and safety standards

Tin-Free Solder

- Tin-bearing solder can grow tin whiskers, causing dangerous failures of electronic components
- XRF can verify tin-free solder both in the pot and on the circuit board
- The Vanta analyzer's optional onboard aiming camera and small-spot collimator enable precise testing of small, intricate components



The Vanta™ Series

Evident manufactures Vanta™ X-ray fluorescence (XRF) analyzers to suit a variety of applications depending on your needs. Each Vanta analyzer is engineered for durability and analytical superiority and comes with a 3-year warranty.**

M Series

Our most powerful Vanta analyzers feature exceptional performance. Each M Series analyzer comes equipped with a large-area silicon drift detector, your choice of either a rhodium (Rh) or tungsten (W) anode, and a 50 kV X-ray tube.

C Series

The C Series combine value with superior speed, limits of detection (LODs), and elemental range. Each C Series analyzer is equipped with a silicon drift detector and your choice of a 40 kV X-ray tube with a rhodium (Rh) or tungsten (W) anode, or a 50 kV X-ray tube with a silver anode.

L Series

Get the ruggedness, ease of use, and data management features of Vanta analyzers in a cost-effective PIN instrument. The L Series is designed for maximum uptime and a lower cost of ownership for reliability in the field.

Vanta Element

Featuring advanced Axon Technology™ processing, the rugged Vanta Element handheld analyzer is an affordable alloy ID solution, providing material and grade identification in seconds. Leverage its connectivity options to streamline your quality control process.

Vanta Specifications

Dimensions (W × H × D)	8.3 cm × 28.9 cm × 24.2 cm (3.25 in. × 11.4 in. × 9.5 in.)
Weight	M series, C series, and L series: 1.70 kg (3.75 lb) with battery, 1.48 kg (3.24 lb) without battery Element: 1.54 kg (3.39 lb) with battery, 1.32 kg (2.91 lb) without battery
Excitation Source	4-watt X-ray tube with application-optimized anode material (rhodium (Rh), silver (Ag), or tungsten (W)) M series (Rh & W) and C series (Ag): 8–50 kV C series (Rh & W): 8–40 kV L series (W) and Element (W): 35 kV (2 watts)
Primary Beam Filtration	M and C series: 8-position autoselected filter per beam per mode; optional collimation to 3 mm diameter beam spot L series and Element: Fixed aluminum filter and no internal collimation
Detector	M series: Large-area silicon drift detector C series: Silicon drift detector L series and Element: Silicon PIN detector
Power	Removable 14.4 V Li-ion battery with hot-swap capability (M, C, and L series only) or 18 V power transformer 100–240 VAC, 50–60 Hz, 70 W max
Display	800 × 480 (WVGA) LCD with capacitive touch screen supporting gesture control
Operating Environment	Temperature range for the M, C, and L series: -10 °C to 50 °C (14 °F to 122 °F), (continuous duty cycle with optional fan); Temperature range for the Element: -10 °C to 45 °C (14 °F to 113 °F) Humidity: 10% to 90% relative humidity non-condensing
Drop Test	Military Standard 810-G 4-foot (1.3 M) drop test
IP Rating and Detector Shutter	M series, and Element IP54: dust protected and protected against water splashing from all directions C and L series IP55: dust protected and protected against water jets from all directions M and C series: Solid detector shutter to help prevent detector damage
Pressure Correction	M and C series: Built-in barometer for automatic altitude and air density correction
GPS	M, C, and L series: Embedded GPS / GLONASS receiver
Operating System	Linux® Cloud enabled with user fleet manager capability
Data Storage	microSD™ slot with removable 1 GB industrial SD card included
USB	(2) USB 2.0 type A host ports for accessories such as wireless LAN, Bluetooth®, and USB flash drives. (1) USB 2.0 type mini-B port for connection to computer.
Wireless LAN	Supports 802.11 b/g/n (2.4 GHz) cable optional USB adaptor
Bluetooth	Supports Bluetooth® with an optional USB adaptor
Aiming Camera	Full VGA CMOS camera (Optional on M, C, and L series)
Panoramic Camera	5-megapixel CMOS camera with autofocus lens (Optional on M, C, and L series)
Warranty	M, C, and L series: Three-year warranty; Element: One-year warranty
Selected Optional Accessories	M, C, and L series: Field Stand, Soil Foot, Holster, Work Station, Weld Mask, Hot Heel, Probe Shield, and VLW Collimation Mask (L series only) Element: Field Stand, Soil Foot, and Holster

- EVIDENT CORPORATION is ISO14001 certified.
- EVIDENT CORPORATION is ISO9001 certified.

* With optional fan. Operates continuously at 33 °C without the fan.

**Excludes Vanta Element. Vanta Element has a 1-year warranty.

All specifications are subject to change without notice.

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