

# Vanta™ Handheld XRF Analyzer



Vanta Element

Vanta Max

Vanta Core



  
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**EVIDENT**

# Maximize Efficiency in the Field and Lab

Instantly identify materials and their chemical composition from any location using the Vanta™ handheld XRF analyzer. The Vanta series delivers fast, accurate elemental analysis and material identification using smart and cloud-connected technology. Our next-generation Vanta handheld XRF analyzers combine the exceptional accuracy, speed, and durability of the Vanta series with improved ergonomics, a streamlined interface, and enhanced connectivity for greater productivity.

## Comfortable and Rugged for All-Day Testing

With an enhanced ergonomic design, Vanta analyzers are a productive tool for extended use in the field and lab. Combined with their proven ruggedness and ease of use, the analyzers can increase uptime in the toughest environments.

- › Balanced handle minimizes hand fatigue
- › Secure and comfortable grip for all-day testing
- › Built to pass a 4-foot (1.2 m) drop test (MIL-STD-810G)
- › IP55/IP54 rated for resistance to water and dust
- › Standard 3-year warranty protects your investment

## Productive Workflow

Vanta analyzers are now even easier to use. Work efficiently using a modern, intuitive interface and browser-based software option.

- › Review, share, and manage XRF results on a PC, tablet, or smartphone with an optional wireless connection for seamless data integration
- › Benefit from the latest features instantly thanks to automatic software updates
- › Enhanced application support with the option to add custom analytical capabilities
- › Access our Evident Connect cloud for seamless data management



The Vanta analyzer's modern interface is easy to use and navigate.

## Trusted XRF Technology

Vanta analyzers are used by thousands of customers around the world in diverse applications. Building on proven performance, analyzers provide precision and accuracy for portable XRF analysis.

- › Vanta series' proprietary Axon Technology uses ultra-low-noise electronics, enabling a higher X-ray count rate for fast, accurate, and repeatable results
- › Axon Technology provides remarkable test-to-test and instrument-to-instrument repeatability, so your first test is the same as your last test no matter what instrument you use

## How XRF Works

X-ray fluorescence (XRF) is a nondestructive testing technique that uses X-rays to measure the elemental composition of a sample. XRF works in four steps:

1. **Emission:** The analyzer emits X-rays.
2. **Excitation:** X-rays hit the sample and it fluoresces, sending X-rays back to the analyzer.
3. **Measurement:** The returning X-rays are counted by the detector. The detector measures the energy of each X-ray, creating a spectrum. This tells us what elements are present and how much of each element is there.
4. **Results:** The energy spectrum is processed via software and displayed as the elemental composition of the sample. For metals, we match the composition to a particular alloy grade.



# Portable XRF Applications

Vanta™ analyzers provide fast results in a diverse range of applications from alloy identification to archaeological site evaluation. Our range of application-specific software features enable operators to get the most out of their analyzers with simplified report creation and traceable results.

## Metal Scrap and Car Catalyst Recycling

Vanta analyzers for scrap sorting feature a SmartSort function that intuitively lengthens or shortens test times based on the material to save time while providing the best possible match. The software automatically compares results to a library of alloy compositions to quickly match unknown materials to known alloys. The Grade Match Messaging feature enables users to program messages for each grade to display warnings or instructions. These messages make it easy for operators to use the analyzer with little training. For car catalyst recycling, Vanta analyzers enable fast analysis of precious metal content for accurate price evaluation.

## Positive Material Identification (PMI) and Manufacturing Quality Control/Assurance

Vanta analyzers help ensure that refineries, petrochemical plants, and other processing facilities are safe by verifying that the correct alloys are installed in critical locations by following American Petroleum Institute Recommended Practice 578 (API-RP-578). Manufacturers and installers of expensive or mission-critical components and machinery can rest easy knowing that they are manufactured with the correct alloy grades, regardless of the material source. The Vanta analyzer can measure the thickness of galvanized coatings, electrocoatings, and other coatings on any substrate. The Vanta series' optional panoramic camera, barcode reader, user-defined input fields, connectivity features, and extensive data reporting capabilities maximize inspector confidence and traceability to the field.

## Environmental Assessments

The Vanta analyzer readily screens soil and other materials for pollutant metals. Paired with GPS data to map results, the results can be wirelessly transferred to a geographic information system (GIS) to create pollutant metal maps. Get fast, decisive results for site characterizations, assessments, property evaluations, and contamination tracking.



## Jewelry Analysis and Precious Metals Identification

Vanta analyzers provide on-the-spot characterization of a range of jewelry and precious metals, including gold (Au), silver (Ag), platinum (Pt), and palladium (Pd). The analyzer accurately classifies the purity of gold alloys (0–24 karat) and can detect plating. With an optional camera, Vanta analyzers automatically archive sample images and results, making it the ideal tool for a reasonable testing program. Excellent sensitivity enables it to achieve low detection limits of regulated elements, and the intuitive interface provides simple pass/fail determinations.

## Research and Education

Vanta analyzers provide quantitative elemental information to guide research and identification of unknown or complex materials. Fast results keep researchers engaged with relevant data in applicable science-based projects.

## Geochemistry, Exploration, and Mining

The Vanta analyzer is the preferred tool for mineral exploration and mining companies, geological consultants, and geologically focused academic, government, and research institutions. It provides accurate and reproducible results in any environment with reliability and ruggedness at the core of its design to minimize downtime. Backed by geologically focused global support and training, our experience in assisting customers develop fit-for-purpose workflows maximizes the utility of your Vanta analyzer. With on-board cameras, collimators, GPS\*, detector shutter protection, and a range of geo-focused accessories, Vanta analyzers continue to be the premium choice for geochemical applications.

## Regulatory and Safety Screening

The Vanta series screens for toxic metals and hazardous materials, including lead (Pb), cadmium (Cd), arsenic (As), mercury (Hg), and chromium (Cr), in consumer products such as toys, apparel, and footwear and in electronics to comply with RoHS regulations. With an optional camera, Vanta analyzers automatically archive sample images and results, making it the ideal tool for a reasonable testing program. Excellent sensitivity enables it to achieve low detection limits of regulated elements, and the intuitive interface provides simple pass/fail determinations.

\*Vanta Max model only.



# Portable XRF Models for Every Budget

Evident manufactures Vanta™ analyzers to suit a variety of application and budget needs.



## Vanta Element

The Vanta Element™ series offers speed, ruggedness, and connectivity in two cost-effective models: the Vanta Element analyzer for basic alloy ID and the Vanta Element-S analyzer for alloy ID with light element detection.



## Vanta Max

The Vanta Max model offers the series' highest analytical capabilities for robust applications, including mineral exploration, academic research, soil testing, and environmental analysis.

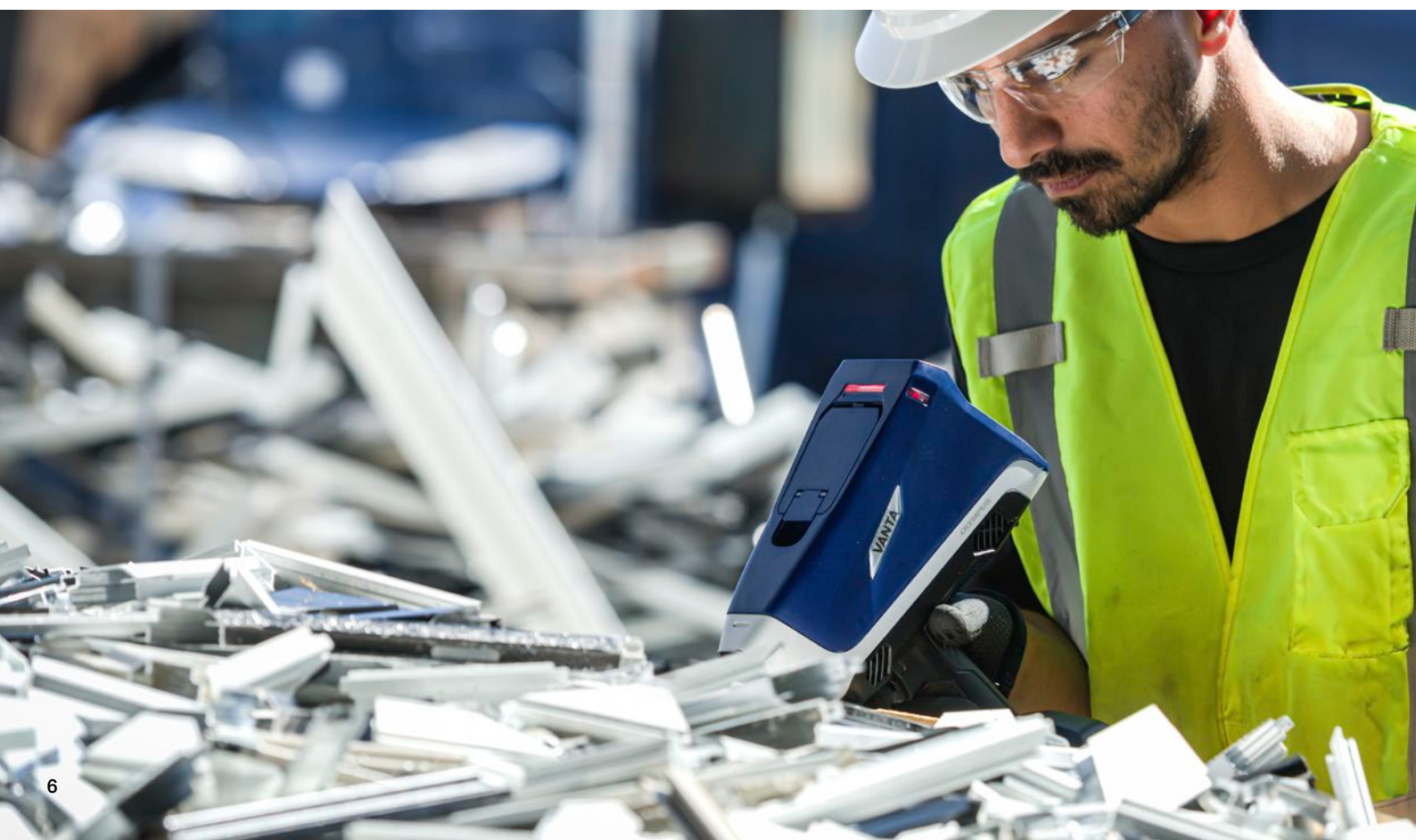


## Vanta Core

The Vanta Core model combines value with speed, low limits of detection (LODs), and a wide elemental range, making it the standard choice for fast alloy identification.

## Our Commitment

Evident is a leader in XRF technology with a reputation for quality and accuracy. We are committed to providing the best technical support and after-sales service for our products, applications, training, and technologies through our global network of sales and customer service teams.



# Versatile XRF Accessories

Vanta™ analyzers are available with optional XRF accessories, including the redesigned soil foot, field stand, and holster for greater efficiency in the field.\*

\*Vanta Element and Element-S models are not compatible with the Vanta Work Station.



## Soil Foot

The Vanta Soil Foot provides a stable three-point support for the Vanta analyzer. This accessory facilitates hands-free analysis, making it convenient when longer test times are required.



## Field Stand

When testing small items, such as samples in cups or bags, the Vanta Field Stand offers a lightweight, mobile test stand and shielded sample chamber. The Field Stand is easy to pack and convenient to use when you are away from your office.



## Holster

Keep your Vanta analyzer safe and secure and within easy reach with the Vanta Holster.



## Work Station

The portable Vanta Work Station is battery operated for testing on the go. A fully interlocked lid and 360-degree shielding make it convenient for bagged, prepped, and liquid samples or small objects, including jewelry and circuit boards. In this closed-beam setup, users operate the analyzer using the Vanta browser-based software.

# Vanta™ Specifications

|                                       |                                                                                                                                                                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Dimensions (W × H × D)</b>         | 10.4 × 29.6 × 24.1 cm (4.1 × 11.6 × 9.5 in.)                                                                                                                                                                                                                                                                |
| <b>Weight</b>                         | Max: 1.9 kg (4.17 lb) with battery, 1.67 kg (3.67 lb) without battery<br>Core: 1.85 kg (4.06 lb) with battery, 1.62 kg (3.56 lb) without battery<br>Element-S: 1.84 kg (4 lb) with battery, 1.61 kg (3.55 lb) without battery<br>Element: 1.71 kg (3.77 lb) with battery, 1.48 kg (3.26 lb) without battery |
| <b>Excitation Source</b>              | X-ray tube with an application-optimized anode material.<br>Max: 4 W with 8–50 kV rhodium anode<br>Core: 4 W with 8–50 kV silver, 8–40 kV rhodium, or 8–40 kV tungsten anode<br>Element-S: 4 W with 8–50 kV silver anode<br>Element: 2 W with 8–35 kV tungsten anode                                        |
| <b>Primary Beam Filtration</b>        | Max and Core: 8-position autoselected filter per beam per mode; optional collimation to 3 mm diameter beam spot<br>Element-S: 4-position filter wheel<br>Element: Fixed aluminum filter                                                                                                                     |
| <b>Detector</b>                       | Silicon drift detector with a high-sensitivity graphene window                                                                                                                                                                                                                                              |
| <b>Power</b>                          | Removable 14.4 V Li-ion battery (with hot-swap capability on Max only) or 18 V power transformer<br>100–240 VAC, 50–60 Hz, 70 W max                                                                                                                                                                         |
| <b>Display</b>                        | 800 × 480 (WVGA) LCD with capacitive touch screen supporting gesture control                                                                                                                                                                                                                                |
| <b>Operating Environment</b>          | Temperature range for Max and Core: -10 °C to 50 °C (14 °F to 122 °F),<br>and continuous full duty cycle with optional fan<br>Temperature range for Element: -10 °C to 45 °C (14 °F to 113 °F)<br>Humidity: 10% to 90% relative humidity non-condensing                                                     |
| <b>Drop Test</b>                      | Military Standard 810-G 4-foot (1.2 m) drop test                                                                                                                                                                                                                                                            |
| <b>IP Rating and Detector Shutter</b> | Max and Element: IP54* dust protected and protected against water splashing from all directions<br>Core: IP55* dust protected and protected from low-pressure water jets from all directions<br>Max and Core: Solid detector shutter to help prevent detector damage<br>*In-use position                    |
| <b>Pressure Correction</b>            | Max and Core: Built-in barometer for automatic altitude and air density correction                                                                                                                                                                                                                          |
| <b>GPS</b>                            | Max: Embedded GPS / GLONASS receiver                                                                                                                                                                                                                                                                        |
| <b>Operating System</b>               | Linux<br>Cloud enabled with user fleet manager capability                                                                                                                                                                                                                                                   |
| <b>Data Storage</b>                   | microSD slot with removable 1 GB industrial SD card included                                                                                                                                                                                                                                                |
| <b>USB</b>                            | (2) USB 2.0 type A host ports for accessories such as Wi-Fi, Bluetooth, and USB flash drives<br>(1) USB 2.0 type mini-B port for connection to computer                                                                                                                                                     |
| <b>Wi-Fi®</b>                         | Supports 802.11 b/g/n (2.4 GHz) cable optional USB adapter                                                                                                                                                                                                                                                  |
| <b>Bluetooth®</b>                     | Supports Bluetooth with an optional USB adapter                                                                                                                                                                                                                                                             |
| <b>Aiming Camera</b>                  | Max and Core: Optional full VGA CMOS camera                                                                                                                                                                                                                                                                 |
| <b>Panoramic Camera</b>               | 13-megapixel CMOS camera with autofocus lens (optional)                                                                                                                                                                                                                                                     |
| <b>Warranty</b>                       | Three-year warranty                                                                                                                                                                                                                                                                                         |
| <b>Selected Optional Accessories</b>  | Max and Core: Field Stand, Soil Foot, Holster, Work Station, Weld Mask, Hot Heel, and Probe Shield<br>Element: Field Stand, Soil Foot, and Holster                                                                                                                                                          |



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