OLYMPUS®

Your Vision, Our Future

Handheld XRF

DELTA Series

DELTA Handheld XRF
for Positive Material Identification (PMI)

Fast, Nondestructive Inspections for QA/QC, Safety and Maintenance

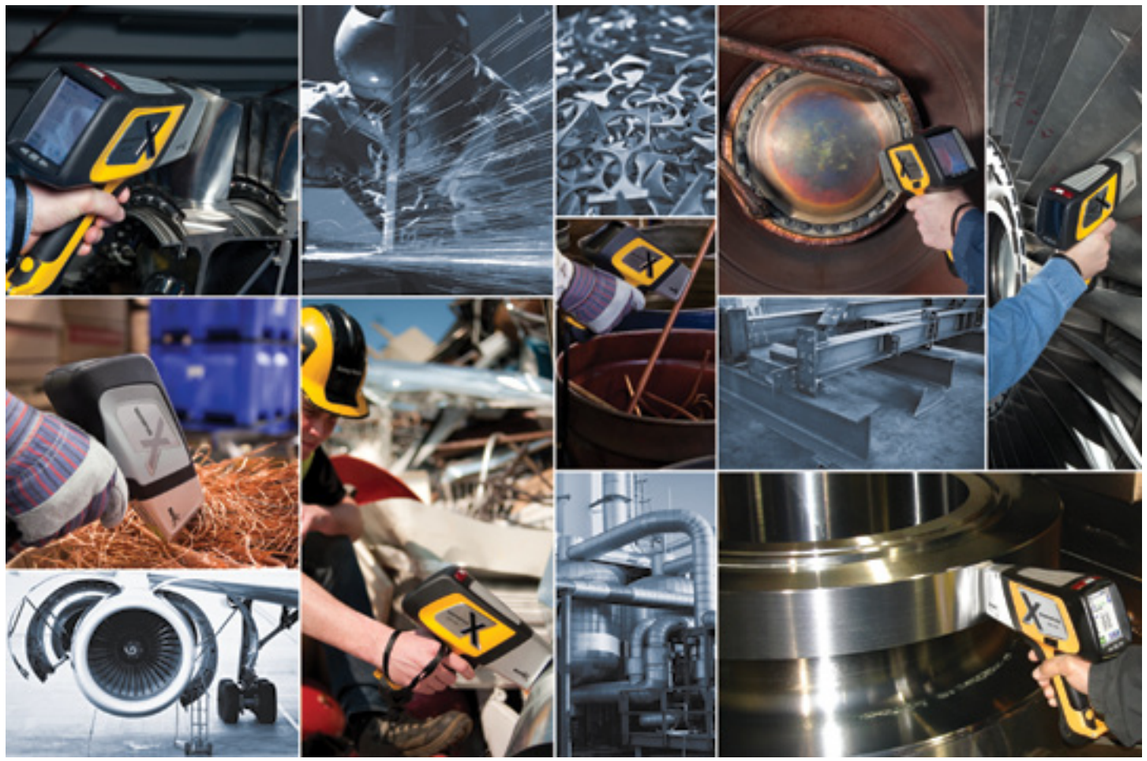
DELTA Handheld XRF Analyzer

for Alloy and Metal Identification

Configured with a standard package of more than 25 elements, the DELTA generates alloy chemistry and grade ID in seconds. From simple sorting to challenging grade separations, the DELTA provides highly specific material chemistry to rapidly and accurately identify pure metals and alloy grades including, but not limited to:

- Aluminum alloys
- Chrome-moly steels
- Cobalt alloys
- Copper alloys
- Exotic alloys
- Magnesium alloys
- Nickel alloys
- Nickel-cobalt alloys
- Precious metals
- Stainless steels
- Tool steels
- Titanium alloys
- Wrought aluminum alloys
- Zinc alloys
- Zirconium alloys

The DELTA Knows Metal and Alloys



When you need a reliable analysis tool to provide fast and accurate Positive Material Identification, turn to the DELTA. From turnings, shavings, rods, and wires to small parts and components, to more sizeable material or structures, the DELTA provides anywhere, anytime testing with faster and more accurate results than ever before.

Exclusive DELTA PMI Features

The DELTA is a reliable and rugged analyzer that maximizes both speed and accuracy. The need to determine whether an ID is incorrect or if longer testing is required needs to be balanced with maximum testing speed without increasing the risk of mistaken IDs or erroneous readings.

Olympus' SmartSort solution automates all these decisions, enabling even inexperienced operators to maximize both speed and inspection accuracy. This powerful feature yields optimized throughput and accuracy, making the DELTA an extremely productive XRF tool for alloy inspection.

The powerful DELTA Handheld XRF maximizes both speed and accuracy for alloy and metal ID, quality control and assurance, safety and maintenance.

High-Temperature Ready

- The DELTA is engineered to be utilized for in-service inspection of high temp systems with temperatures in excess of 426 °C (800 °F)
- Industry-exclusive heat sink dissipates heat away from the XRF electronics
- Can be used for longer durations in hot environments
- Facilitates enhanced reliability of key XRF electronic components
- Provides faster cooling of electronics after exposure to high temperatures

SmartSort Mode

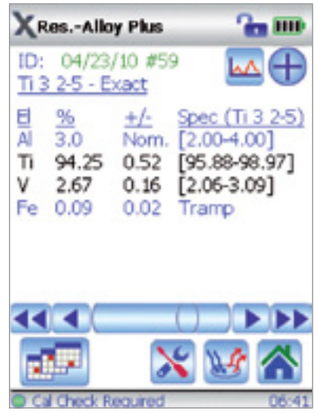
- Enables specific grades to be set up to automatically extend testing time, thus preventing mix-ups
- Maximizes efficiency for speed testing. Automatically extends tests for light elements (Mg, Al, Si, P, S) when absolutely necessary, thus eliminating unnecessarily long tests, and preventing mix-ups
- Makes the DELTA an extremely fast and accurate inspection tool

Grade Match Messaging

- Enables qualitative information and messages to be added into the grade ID library
- Fully customizable messages allow for refinery-specific coding messages
- Can be used to store multiple Messaging libraries for individual work sites

Tramp Library

- A long-time standard feature in OES systems, the DELTA is the first Handheld XRF to incorporate this feature
- Allows operators to set a max tolerated concentration for individual elements in 7 unique grade families; these elements are considered "tramp" or "residual" elements
- The DELTA comes preloaded with a tramp library based on industry standards
- The analyzer can identify and report tramp material, enabling the user to simplify grade matching by not having to count small, expected amounts of tramp elements against the grade match
- Detects and quantifies tramp residuals critical to selective corrosion investigations and failure analysis



Analysis results display demonstrating Nominal value (3% Al) and Tramp element (0.09 % Fe) features.

DELTA for Positive Material Identification

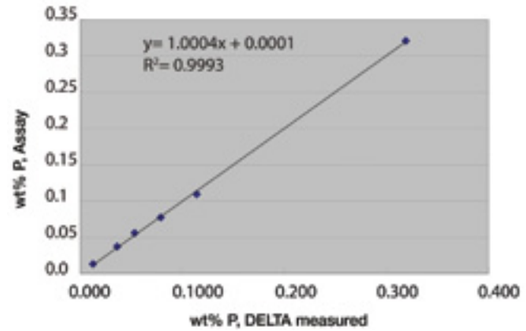
With Newly Available X-act Count Technology

Superior Light Element Analysis

Traditionally a difficult area for handheld XRF, the analysis of light alloys and elements (Mg, Al, Si, P, S) can now be routine with the DELTA Alloy and Metal XRF Silicon Drift Detector (SDD) Analyzer with the newly available X-act Count Technology. Its integration with a 40kV Rh-anode tube and automatic filtering provides fast, precise analysis of transition and heavy metals, and sensitive measurement of light element content. SmartSort maximizes testing throughput – sample by sample, testing is automatically extended or terminated – maximizing accuracy and throughput.

DELTA SDD Analyzer Benefits

- Magnesium (Mg) detection down to 0.20%
- Quick and accurate quantification of S content in stainless and low alloy steels
  - Reliable identification of 303 and 416 grades
- Measures Si and Al in stainless, bronzes and other alloys
- Measures P in carbon steel down to 0.014% with exclusive 3-beam Alloy Plus calibration
- Extensive grade library combined with SmartSort provides nominal chemistry for light elements when the fastest testing speeds are required



Correlation plot of Phosphorus (P) in Low Alloy Steel Analysis by DELTA Premium SDD Analyzer.

Ultimate Aluminum Analysis

The new Olympus DELTA SDD Analyzer offers unmatched Al performance. It easily and directly sorts and grades Aluminum and Aluminum-containing materials.

Aluminum Alloys

- Accurately measures Mg content in 5000 series alloys and separates Mg-containing alloys. Sorts 3003 and 3004; 1100 and 6063; 2014 and 2024

Titanium Alloys

- Accurately determines the Al content in Ti alloys, including CP Ti cut with Al

Red Metals

- Accurately classifies Al and Si bronzes

High-Temperature Cast Stainless

- Measures Al in high-temp, Ni/Co superalloys

DELTA alloy results screen

DELTA Handheld XRF for Overall Value

Small Component and Weld Analysis

Integrated Small-Spot Collimator

DELTA Analyzers have a standard 9 mm spot size, but can be equipped with a 3 mm diameter spot collimator for highly focused sample analysis. This provides the capability of analyzing thin weld beads independent from substrate materials and small fixture components, wires, and solders.

- Spot sizes can be changed by simply touching the screen.
- An integrated full VGA camera takes a live video image of the sample tested and superimposes a spot location for precise test location.
- The sample image is saved to memory after analysis. The image can be archived along with the analysis results and exported for simple report generation.

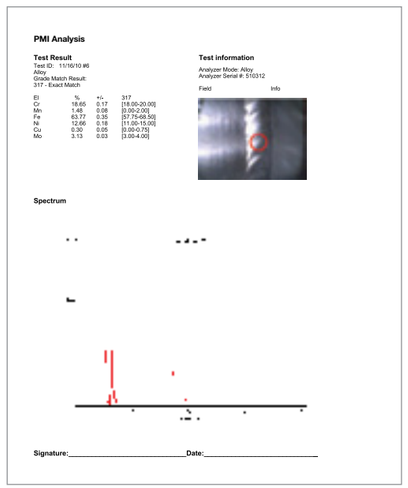
Easy Report Generation

- Get fast, easy-to-interpret customizable results screen
- Export data to wireless printer via Bluetooth®
- Generate custom reports with DELTA PC Software
  - Incorporate quantitative and qualitative results
  - Incorporate analysis images
  - Incorporate operator & company information
  - Incorporate company logo

Welding Grade Library

- Can be activated alongside the standard inspection library for comprehensive PMI work
- Provides easy grade addition or editing onboard the analyzer
- Standard Grade Match Messaging library included

DELTA with a optional welding mask



DELTA Alloy Report Generation

The DELTA Series

Everything You Need in Handheld XRF with State-of-the-Art Innovation

The New Generation DELTA Handheld XRF Analyzers are ergonomically advanced with a forward looking design incorporating the latest in electronics, components, and software technology.

DELTA Professional

The DELTA Professional with a 40kV tube and SDD detector is the best value solution from Olympus for handheld XRF analyzers. It provides superior performance in speed, LODs, and elemental range.

DELTA Premium

The DELTA Premium with advanced 40kV tube and large area SDD detector is best for ultra quick, analytically demanding applications, such as trace levels and light elements in low alloy steel, soil, mining, and metallurgical samples.

DELTA Classic Plus

The DELTA Classic Plus with a 40kV tube and Si-PIN detector is ideal for simple applications. It provides quick ID, screening, sorting, and elemental and metals analysis.

Some DELTA Professional and Premium models can be configured with a 50kV tube to optimize LODs for high-Z and challenging elements, such as Ag, Cd, Sn, Ba, Cr, Sb, Te, and Rare Earth Elements (REEs).

The newly available DELTA X-act Count Technology can provide even better sensitivity and precision in faster time for more materials than before. Throughput is increased with the same or better precision in half the time for most elements.

Features and Benefits
Powerful 4W X-ray tube, 200 µA current (max), optimized beam settings
Tight geometry for exceptional LODs and high analysis throughput
Large-Area SDD and customized X-ray tube options for exceptional sensitivity and precision for more elements and materials
Patent-pending automatic barometric pressure correction that adjusts calibration as needed for more accurate analysis of light element.
Lightning-fast data acquisition for faster testing time
Floating Point Processor: Provides more calculations in less time, and leverages more advanced calibration algorithms
Integrated Bluetooth® for data input and output available in most countries
Integrated wide area heat sinks throughout the DELTA body for high power use in extreme temperatures
Analysis indicator lights visible from 360° to help ensure safe use
Advanced colortouch LCD screen for clarity, brightness, responsiveness, and energy efficiency for indoor/outdoor use
Accelerometer technology puts the unit into sleep mode to save energy when not in use; logs impacts for tool management
DELTA PC Software for enhanced data analysis, calibration modeling, and optional closed beam workstation operation
USB interface port for high-speed downloads and seamless PC control
Ergonomic rubberized handle for enhanced grip
Docking Station and Hot Swap Batteries

The unique DELTA Docking Station frees you from having to power down the analyzer. The station charges the analyzer battery and a spare, and performs periodic calibration checks. DELTAs can be operated 24/7 in the field with hot swap battery replacement.

Optional DELTA Accessories

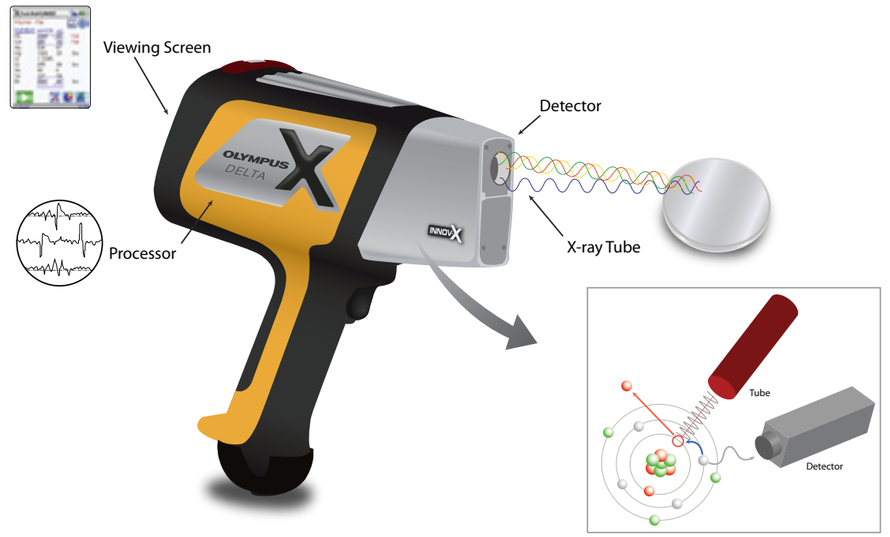
1. DELTA Portable Workstation

Portable workstation with integrated safety-lock shielding is convenient for small objects; a PC is connected for remote control of this closed-beam DELTA set-up.

2. DELTA Holster

The holster keeps the DELTA by your side and within easy reach.

DELTA Handheld XRF Configuration



The DELTA brings the power and flexibility of handheld X-ray fluorescence spectrometry to the field. Ruggedized and ultra portable, this dramatically fast 24/7 technology provides accelerated testing times, allowing for hundreds more tests to be conducted per day with analytical confidence. The DELTA series analyzers are configured with powerful miniature X-ray tubes, Si-PIN detectors or highly advanced Silicon Drift Detectors (SDD), specialized filters, and multi-beam optimization for the ultimate in XRF field analysis. The DELTA's real overall value is to help make decisions in real time with minimal reliance on off-site laboratory testing.

The DELTA Line

The DELTA series handheld XRF analyzers are configured with powerful miniature X-ray tubes, Si-PIN, or highly advanced Silicon Drift Detector (SDD) detection, specialized filters, and multi-beam optimization for the ultimate in XRF field analysis.

DELTA Specifications*

	DELTA Premium	DELTA Professional	DELTA Classic Plus
Excitation Source	4W Rh, Au, or Ta anode (per application) X-ray tube	4W Ag, Rh, Au, or Ta anode (per application) X-ray tube	4W Au or Ta anode X-ray tube
Detector	Large-Area Silicon Drift Detector	Silicon Drift Detector	Si-PIN Diode Detector
Analytical Range	Alloy and Mining: Mg and up for Rh/Ag and Al and up for Ta/Au; Soil: P and higher		Alloy and Mining: Ti and higher; Soil: P and higher
Weight	1.5 kg (3.25 lbs) without battery		
Dimensions	260 × 240 × 90 mm (10.25 × 9.5 × 3.5 in.)		
Environmental Temp Range	-10 ºC to 50 ºC (14 ºF to 122 ºF)		
Processing Electronics	530 MHz CPU with integrated FPU with 128 MB RAM; Proprietary Olympus Digital Pulse Processor (DPP)		
Smart Electronics	Accelerometer; Barometer for atmosphere pressure corrections of light elements' measurements		
Power	Rechargeable Li-ion battery; Hot-swap maintains analyzer power during battery charge		
Data Display	32 bit Color QVGA resolution, Blanview transmissive backlit touchscreen; 57 × 73 mm (2.25 × 2.9 in.)		
Data Storage	1 GB microSD (stores ~75,000 readings)		
Data Transfer	USB, Bluetooth®		

Standard Accessories

- Waterproof Carrying Case
- Two (2) Li-ion Batteries
- Electronic User Manual and User Interface Guide and Printed Quick Start Guide
- Docking Station
- Mini USB Cable
- 316 Stainless Steel Calibration Check Reference Coin
- Ten (10) Spare Windows
- Integrated Wrist Strap
- DELTA PC Software
- Factory Authorized Training and Support

OLYMPUS NDT INC. is ISO 9001 and 14001 certified

*All specifications are subject to change without notice.

www.olympus-ims.com

OLYMPUS®

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www.olympus-ims.com/contact-us

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