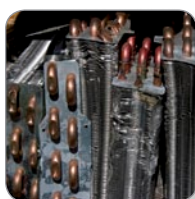




Portable XRF for Scrap Processing and Recycling Industries



- Alloy/Metal Identification
- High-Speed Sorting
- Light Element Analysis
- Advanced Aluminium Analysis



The DELTA Line

Rugged, High-Performance Handheld XRF

See and feel the DELTA difference. Our analyzers are compact and robust from probe to trigger to display, with sophisticated XRF technology that's better, faster, and more responsive. From initial start-up to the final result, the DELTA is the optimum solution for all your analytical needs.

The DELTA line gives you the ultimate experience in field-portable handheld XRF analysis, providing fast measurements with accuracy, precision, detection limit, and light element measurement capabilities built into a compact single-chassis frame wrapped in robust industrial-grade casing.

Incorporating Everything You Need in Handheld XRF with State-of-the-Art Innovations – The DELTA Line from Innov-X.



4 W X-ray tube, 200 μ A current (max), plus optimized beam settings

Tight geometry for exceptional LODs and high analysis throughput

Large-Area SDD option plus customized X-ray tube provides exceptional light element sensitivity

Patent-pending automatic barometric pressure correction that adjusts calibration as needed

Lightning-fast bootup and data acquisition: faster testing, more results

Floating Point Processor: provides more calculations in less time, and leverages more advanced calibration algorithms

Integrated Bluetooth for data input and output

Ergonomic rubberized handle for enhanced grip

Analysis indicator lights visible from 360°

Bright, responsive, color touch screen display

Accelerometer technology puts the unit into sleep mode when not in use to conserve power; logs impacts for tool management

USB interface port for high-speed data download and seamless PC control

Hot Swap: the rechargeable battery can be replaced without having to turn off or re-standardize the unit.

Docking Station with Automatic Charging and Calibration Check

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. The analyzer can be removed at any time for immediate testing.



Additional battery charger

DC outlet

Power and battery indicator lights

Connect to a PC for data management

USB connector port

Where Ruggedness and Performance Converge

A new, ergonomically-advanced, forward-looking design backed with the latest in electronics, components, and software technology. The result: the high-performance and rugged Olympus Innov-X DELTA.

Testing times that once took 5 to 10 seconds with handheld XRF now take just 1 to 2 seconds to complete, and provide even greater accuracy and precision. This means scrap recyclers and metal processors can run hundreds more tests per day with guaranteed results, further increasing productivity, boosting customer confidence, and maximizing the bottom line.

Tough on the Outside

Ideally suited for the harsh scrap recycling environment, the DELTA is equipped with our trademark weatherproof, dust-proof protective housing.

- Ruggedized casing manufactured to industrial standards – no PDA or movable screen means superior reliability.
- Superior field-use ergonomics with rubberized grip for ease of handling during all-day use.
- Large, rear-facing, motion-responsive, transfective touch screen for clear viewing; automatically brightens in sunlight.
- An external heat sink engineered for extreme-temperature and high-power use.
- Time-saving hot-swappable batteries - enables the rechargeable battery to be replaced without having to turn off or re-standardize the unit.

Smart on the Inside

Engineered with advanced technology, yet so simple to use. The intuitive user interface makes navigation easy for both non-technical and more advanced operators.

- Up to 4x improvement in light element analysis resulting from the DELTA's custom 4 W, 200 μ A (max) X-ray tube.
- Up to a 10x improvement in sorting speed and throughput thanks to state-of-the-art electronics, a floating-point processor, and redesigned analytical geometry.
- Time-saving, auto-calibration feature built into our exclusive docking station, which eliminates the need to stop testing for standardizations.
- Expanded alloy library of 400+ unique grades; user-settable tramp limits to facilitate accurate poisonous element analysis.
 - Custom grades can be added on the spot



The screenshot shows the 'X Test' software interface. At the top, it says 'Alloy Ready' and 'Test ID: 01/07/10 #35'. Below this, it says 'SS416 - Exact Match'. A table lists elements and their percentages with tolerance ranges. At the bottom, there are icons for a play button, a wrench and screwdriver, a pie chart, and a house. The status bar at the bottom says 'Ready' and '01/07/10'.

| Element | % | +/- |
|---------|-------|------|
| Si | 0.42 | 0.09 |
| S | 0.31 | 0.03 |
| Cr | 12.30 | 0.11 |
| Mn | 0.35 | 0.04 |
| Fe | 85.87 | 0.34 |
| Ni | 0.25 | 0.04 |
| Mo | 0.07 | 0.01 |

Within seconds, the DELTA provides an easy-to-interpret results screen that can be viewed in a customizable list or spectral format. Simple, fast data export is achieved via USB or Bluetooth to Microsoft Excel spreadsheet, or printed directly via a wireless printer.



DELTA Premium Handheld XRF Analyzer



Innovative Features

The analytical capabilities of HHXRF continue to expand, and new features are continually enabling operators to be more effective and efficient. Make sure that your HHXRF is a DELTA: the latest HHXRF loaded with innovative features and backed by the industry's best service and support.

Unrivaed Light Alloy Performance

(Ask for our Aluminium Alloy sorting report)

- Offers the most powerful X-ray tube in a handheld: 4x the power!
- Sorts Al alloys that differ in principle only by small amounts of light elements. Upgrades aluminiums quickly and easily:
 - 356 – measure the 0.4% Mg in just 10 seconds!
 - Sort 3003 vs 3004 vs 3005

SmartSort Mode

SmartSort automates sorting decisions, enabling even inexperienced operators to maximize both speed and sorting accuracy.

- Maximizes efficiency for speed testing – automatically extends tests for light elements (Mg, Al, Si, P, S) when absolutely necessary eliminating unnecessarily long tests AND mix-ups.
- Makes the DELTA an extremely fast analyzer for general sorting.

13

Al

Aluminum

14

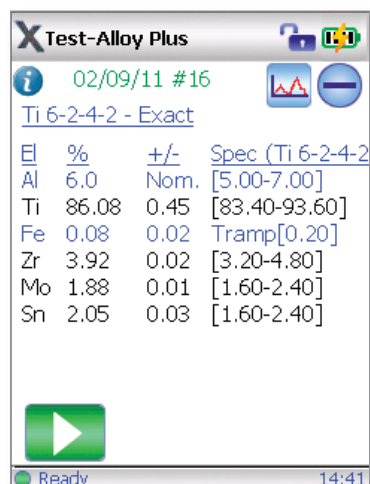
Si

Silicon

15

P

Phosphorus



| El | % | +/- | Spec (Ti 6-2-4-2) |
|----|-------|------|-------------------|
| Al | 6.0 | Nom. | [5.00-7.00] |
| Ti | 86.08 | 0.45 | [83.40-93.60] |
| Fe | 0.08 | 0.02 | Tramp[0.20] |
| Zr | 3.92 | 0.02 | [3.20-4.80] |
| Mo | 1.88 | 0.01 | [1.60-2.40] |
| Sn | 2.05 | 0.03 | [1.60-2.40] |

An analysis results display demonstrating Nominal value (3% Al) and Tramp element (.09% Fe) features.

Nominal Chemistry

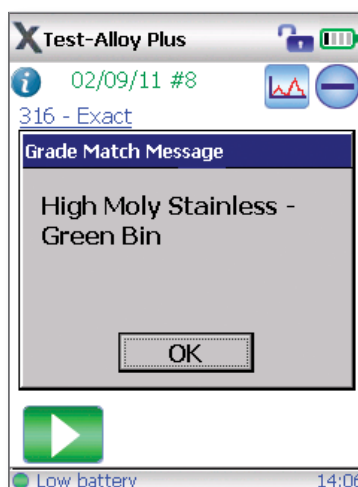
- Nominal chemistry is provided for 'invisible' elements, based on grade ID.
- Competitors' systems don't indicate which elemental chemistry is actually nominal. The DELTA does, providing critical information to the operator in its clear results display.

Tramp Library

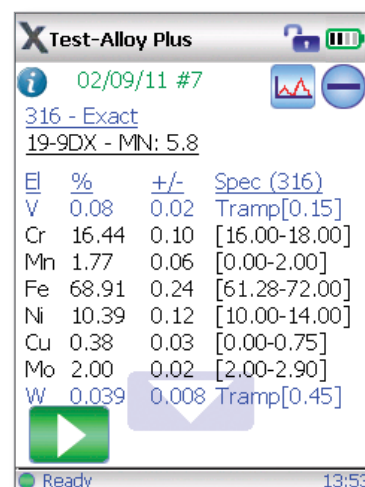
- Enables the operator to set a max tolerated concentration for tramp and residual elements in grade families.
- The DELTA comes preloaded with a tramp library based on industry standards.
- The Delta reports tramp material and uses the tramp library to improve grade IDs based on residual content fluctuations.

Grade Match Messaging

- The Yard Manager can quickly and easily assign pop-up messages to specific alloy grades.
- At conclusion of a test, a new window with the assigned message opens on the display. For example, a "316" ID may signal the following to the operator: "High Moly Stainless - Green Bin."
- Next test can be started immediately, or the full chemistry result can be viewed with one click.
- GMM offers superior user efficiency and effectiveness for sorting:
 - Immediate sorting instructions
 - Reduced operator training
 - Increased efficiency and higher throughput



Grade Match Message



| El | % | +/- | Spec (316) |
|----|-------|-------|---------------|
| V | 0.08 | 0.02 | Tramp[0.15] |
| Cr | 16.44 | 0.10 | [16.00-18.00] |
| Mn | 1.77 | 0.06 | [0.00-2.00] |
| Fe | 68.91 | 0.24 | [61.28-72.00] |
| Ni | 10.39 | 0.12 | [10.00-14.00] |
| Cu | 0.38 | 0.03 | [0.00-0.75] |
| Mo | 2.00 | 0.02 | [2.00-2.90] |
| W | 0.039 | 0.008 | Tramp[0.45] |

Chemistry is always available - select OK from the Grade Match Message

Key Applications

DELTA XRF analyzers are versatile, precise tools that can be utilized for a variety of sorting and analysis applications in real time, with little training, and little to no specific calibrations necessary. Whether your needs are basic ID and sorting, or more extensive tramp element analysis, Olympus Innov-X has the analyzer to fit your business demands.

Non-ferrous Alloys

DELTA analyzers excel with ease at quick analysis and ID of stainless steels, Ni superalloys, and other high alloy materials. Sort out heavy alloys based on low levels of Si and Al content.

Low Alloy Steels

Verify residual content in steels. Confirm Si, S and P content, along with Mn and alloying element levels.

Aluminium and Light Alloy

With the technical advances of the DELTA analyzers, the range of light alloy capabilities continues to expand. Their outstanding Mg sensitivity enables you to confidently sort aluminum alloys once relegated to OES systems.

Electronics

Sort out electronics components with precious metal content (Ag, Au, Pd, etc.). Sort out and identify poisons and Pb-containing solders. Evaluate copper content in shredded materials.



Glass

Quickly sort out Pb-containing glass and glass-ceramic from recycling streams. Detect toxic elements.

Copper

Within seconds, separate brasses, bronzes, leaded alloys, and aluminum and silicon-containing alloys. Sort out Be-Copper using the DELTA's nominal chemistry feature.

Precious Metals

The DELTA provides nondestructive chemistry analysis, in addition to karat determination. Gold, silver, and platinum alloys, and more can be tested confidently. The DELTA is available with an integrated camera and small spot collimation for detailed analysis of small pieces.

Car Catalysts

Olympus Innov-X has partnered with industry experts to develop calibrations ideal for the analysis of auto catalyst materials for precious metal content, including Pd, Pt, and Rh.

Slags

Monitor the chemistry of slags during melts for quality control and furnace life prediction. Sort and evaluate recovered slags from different melt operations.

Solutions from Handheld Analyzers to Online Sorting Systems

When you need reliable sorting tools to achieve maximum recovery and the highest value for your scrap material, turn to Olympus Innov-X. From turnings, shavings, rods, and wires to more sizeable materials or structures, our family of solutions provide faster and more accurate results than ever before.

Olympus Innov-X Knows Metal and Alloys

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

- Aluminium alloys
- Chromium-Molybdenum steels
- Cobalt alloys
- Copper alloys
- Exotic alloys
- Magnesium alloys
- Nickel alloys
- Nickel/cobalt alloys
- Precious metals
- Stainless steels
- Tool steels
- Titanium alloys
- Wrought aluminium alloys
- Zinc alloys
- Zirconium alloys

The DELTA Line

Enjoy a long-term relationship with your DELTA. Olympus Innov-X is the only handheld XRF manufacturer to offer a truly upgradable platform. As your analysis needs change, the performance features of your existing DELTA can be incrementally added and upgraded as well.



DELTA Premium

Combining a large area, high-performance SDD and a 4W optimized X-ray tube, the Premium is the ideal solution for ultra quick, analytically demanding applications, and superior LE analysis in air.



DELTA Standard

Our Silicon Drift Detector provides excellent speed and LODs, as well as some light element analysis capabilities. The new standard in handheld XRF.



DELTA Classic

Our classic DELTA analyzer; equipped with an Si PIN detector. A high-tech, flexible analyzer for typical XRF analysis sorting of stainless steels, nickel alloys, and more.

X-STREAM High Volume Sorting and Separation

Olympus Innov-X has made it a priority to understand what recyclers and metal processors need to increase the value of their scrap asset and keep a competitive edge. To complement our handheld XRF, we also offer unique high-volume XRF systems that sort and separate mixed scrap material by highly specific material chemistry. Solutions are available for a wide variety of recyclable materials, including ferrous, non-ferrous, glass, plastics, electronic waste and wood.



On-line integrated X-STREAM sorters distributed by Steinert

Your partner...

Olympus Innov-X is your partner. We understand the recycling business, and the demands placed on sorting tools. We engineer our analyzers to be rugged and reliable – our aim is to keep you up and running. If you have an analyzer go down in service, the opportunity costs can be massive. We are committed to supporting you and your investments with Olympus Innov-X analyzers.

Return on Investment

The DELTA is FAST. We know that the faster the test, the more tests you can run in a shift. The DELTA will maximize your sorting throughput and testing process. The DELTA is also SMART. When materials change, the DELTA will instantly compensate, and adapt its testing algorithm to provide not just an answer, but the RIGHT answer. The DELTA will automatically maximize throughput for whatever you throw its way. And Olympus Innov-X makes investment easy with rental buy-out and leasing options available in some countries.

Outstanding Customer Support

From initial demonstration and identification of your testing needs to thorough user training to fielding any questions or needs going forward, we are ready to support you. We take pride in the thorough training of our support department and our responsiveness to our customers' needs. We are committed to your satisfaction.

Global Service Coverage

With locations around the world, we have local, certified service centers to support your analyzers wherever they're being utilized.



OLYMPUS

www.innovx.com

info@innovx.com

OLYMPUS INNOV-X
100 Sylvan Road, Woburn, MA 01801, USA, Tel.: 1-781-938-5005
OLYMPUS NDT INC.
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1) 781-419-3900
OLYMPUS AUSTRALIA PTY. LTD.
31 Gilby Road, Mount Waverly, Victoria, 3149, Tel.: (61) 130-013-2992

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