NEX QC II SERIES

Elemental Analysis by X-ray Fluorescence

Benchtop EDXRF for Everyday Quality Control

Rigaku

Applied Rigaku Technologies

NEX QC II SERIES

Everyday elemental testing at your fingertips.

Quality Control That Doesn't Slow You Down

Production teams need fast elemental analysis without adding complexity to the process. Systems that require specialized training, expensive consumables, or frequent maintenance can slow operations and increase costs.

The NEX QC II Series is engineered for dependable, everyday industrial use and uses energy dispersive X-ray fluorescence (EDXRF) technology for rapid, non-destructive elemental analysis. Its compact, self-contained design—featuring an embedded computer and built-in printer—eliminate PCs or peripherals on the plant floor. The clear, icon-driven touchscreen interface guides users from setup to results, minimizing training time and reducing operator error.

With no technical background required, no expensive consumables, minimal sample preparation, and low operating costs, the NEX QC II Series provides dependable EDXRF quality control performance that supports uptime, efficiency, and cost control.

- ✓ Fast, multi-element analysis
- ✓ Low ppm to high wt%
- ✓ Easy to learn, easy to operate
- ✓ Compact, rugged design
- ✓ No external PC, built-in printer
- ✓ No expensive consumables
- ✓ Low total cost of ownership

Fast, Reliable Elemental Analysis Within Reach for Any Quality Control Lab or Production Facility

A New Generation of EDXRF Benchtops for Today's QC

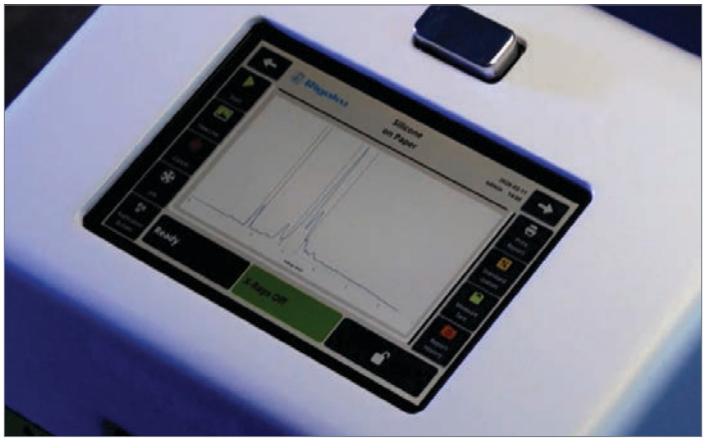
The NEX QC II Series represents the next evolution in benchtop EDXRF, a proven and cost-effective technology used for fast, non-destructive elemental analysis. Whether you are new to EDXRF or replacing an older instrument, the NEX QC II platform delivers the performance, durability, and simplicity for modern QC demands.

This second-generation design features graphene window silicon drift detectors (SDDs), an updated optics configuration, upgraded processing electronics, improved detector protection, and a redesigned touchscreen interface. These upgrades result in a versatile, easy-to-use benchtop designed for routine QC across production floors, manufacturing lines, and laboratory settings.

The series includes two models, the NEX QC II and the NEX QC II+, to accommodate different performance needs and budgets.

Key Advantages & Features

- Non-destructive elemental analysis from sodium (Na) to uranium (U)
- Measures solids, liquids, powders, coatings, and thin films
- Redesigned touchscreen interface for simplified training and operation
- Compact, rugged design for demanding industrial environments
- Graphene window SDDs with enhanced detector configuration on the NEX QC II+
- Reinforced detector window protection for continuous industrial use
- Smaller footprint with built-in printer; no external computer required
- Low cost of ownership backed by a 2-year warranty



Upgraded Where It Counts

Improvements in Performance, Reliability, and Day-to-Day Usability

The NEX QC II Series builds on the proven NEX QC platform with upgrades that directly support industrial quality control. Every aspect of the system has been refined to help QC teams work faster, maintain uptime, and control operating costs in real-world production environments.

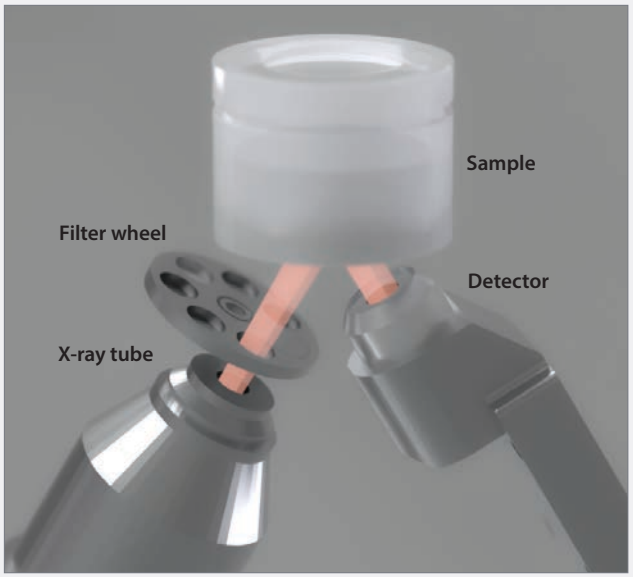
Feature	Description
Graphene window SDD	Large area silicon drift detectors with graphene windows replace legacy beryllium window detectors, delivering higher resolution and improved sensitivity for routine and demanding QC tasks.
Optics and electronics	An optimized tube-to-sample geometry and larger detector active area enhance overall measurement performance. Improved detector collimation reduces stray lines and provides added detector protection. Updated electronics further improve signal quality and help support reliable everyday operation.
Touchscreen interface	A redesigned icon-driven touchscreen interface with guided setup makes it easy for operators to obtain fast, reliable, results, even with limited technical background.
Detector protection	A new configuration protects the detector from direct exposure, including during routine window film changes, providing an additional layer of protection. This proven design, used in the NEX DE Series, has demonstrated robust detector protection in continuous industrial use.
Smaller footprint	A more compact, lightweight design saves space in labs and on crowded plant floors. With dimensions of 28.7 (W) × 46.5 (D) × 26.2 (H) cm (11.3 × 18.3 × 10.3 in) and a weight of approximately 15.5 kg (34 lbs), it fits easily into small or remote QC stations, and an optional carrying case supports portable use when needed.

The NEX QC II Series offers two detector configurations so you can match analytical performance to your specific QC needs and budget. Both models share the same compact, self-contained benchtop platform with an integrated computer, built-in printer, and intuitive touchscreen interface. The difference lies in detector performance, not complexity of operation.

Feature	NEX QC II	NEX QC II+
Detector type	SDD with graphene window	Higher-resolution SDD with graphene window
Energy resolution	<170 eV	<135 eV
Active area	20 mm^2	30 mm^2
Ease of use	Same simple operation as NEX QC II+	Same simple operation as NEX QC II
Light-element sensitivity	Standard	Enhanced
Typical use	Routine QC, general-purpose elemental analysis	More demanding QC, tighter specs, light-element focus
Price tier	Standard performance level	Higher-performance level

Performance Beyond the Detector

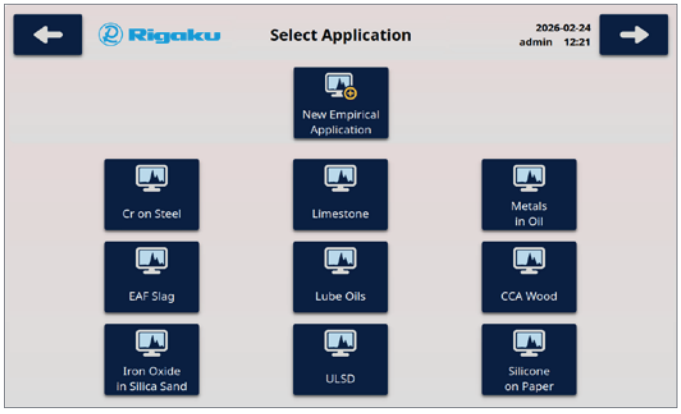
The NEX QC II Series builds on a proven platform with a larger active area graphene window SDD, a 50 kV X-ray tube, and automated tube filters in an optimized optical design. This configuration improves measurement performance while supporting reliable operation. By positioning the X-ray tube closer to the sample and refining the system geometry, the instrument reduces unwanted signal interference and background noise. Updated electronics and improved detector collimation further enhance signal quality and provide added detector protection. With the X-ray tube operating only during data collection, component wear is also reduced. The result is stronger overall performance and dependable day-to-day operation, with controlled operating costs.



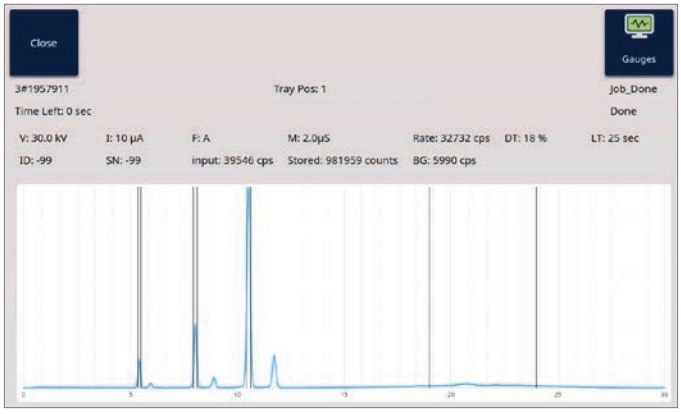
Software Designed for Fast, Confident QC

Easy to Learn, Simple to Run

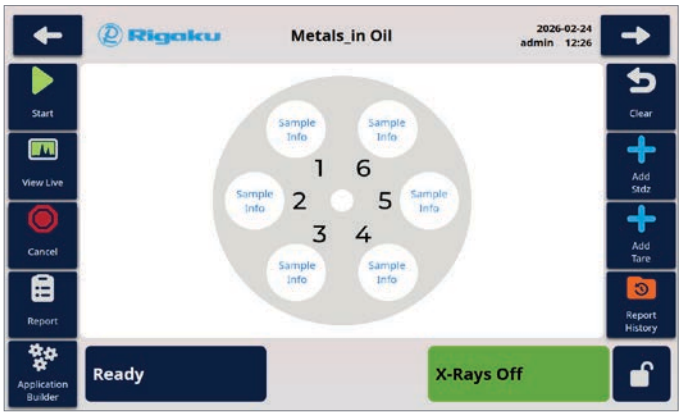
Most users can begin running routine measurements after only a short introduction to the touchscreen interface. The NEX QC II Series uses clear icon-driven menus and a guided flowbar Application Builder to help operators move naturally from setup to final results, reducing training time and minimizing the chance of error. Because the software runs on an integrated platform with a built-in printer, there is no need for an external computer at the instrument. Results and reports are available directly at the system and can be exported to USB or network. The interface supports multiple languages and offers LIMS connectivity.



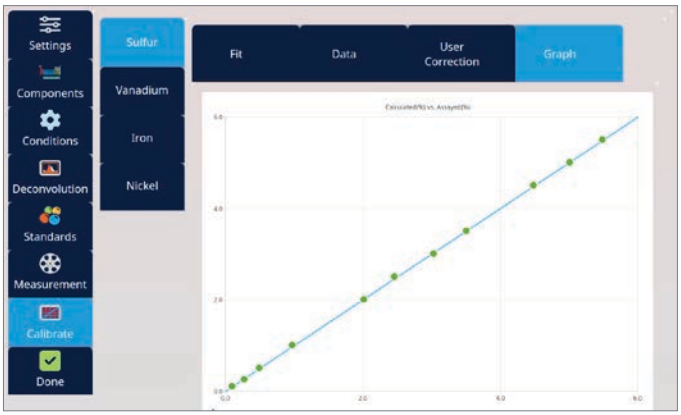
The icon-driven top-level menu allows you to select the desired analysis with the touch of a finger.



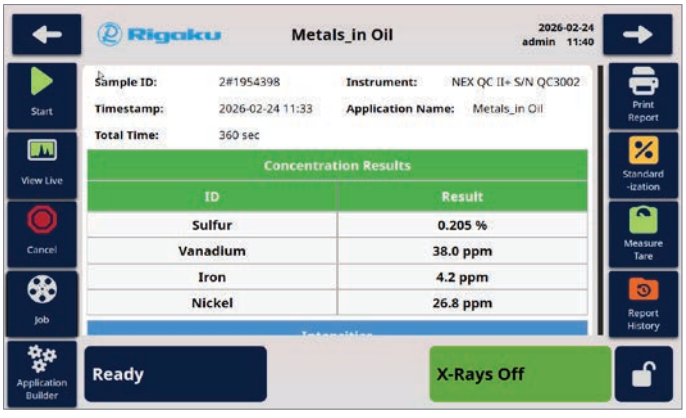
Live spectrum acquisition screen showing characteristic peaks from the sample during measurement.



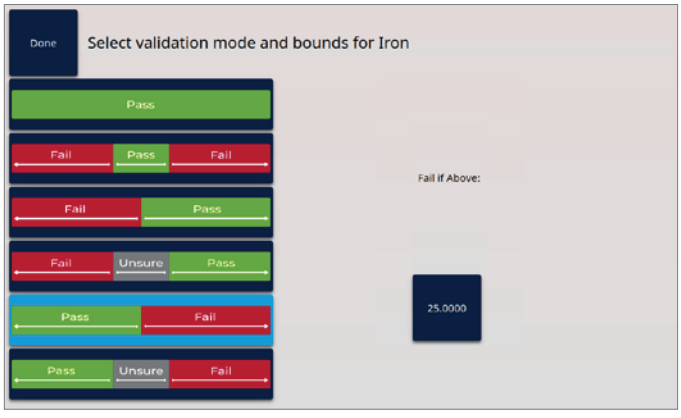
With an autosampler, you can enter the sample identification for each sample tray position and press "Start" to run job.



In the Application Builder, calibration curves and statistics are readily accessible with icon-driven navigation.



The results screen displays easy-to-read concentration result values with one-touch report printing via the Print Report button.



Set upper and lower limits, then use the validation feature for clear pass/fail interpretation of analytical results.

NEX QC II SERIES

Built for Daily Quality Control and Production Use

The NEX QC II Series is designed to make everyday elemental testing practical, reliable, and affordable for industrial QC. From flexible sample handling and broad elemental coverage to simple operation and low daily operating costs, each feature is focused on maximizing uptime and delivering consistent results where they matter most.

✓ Analyze Sodium (Na) to Uranium (U)

Non-destructive analysis of sodium to uranium in solids, liquids, powders, coatings, and thin films.

✓ Graphene Window Silicon Drift Detector

Improved detector technology with a graphene window delivers clearer peaks, more reliable results, and increased light element sensitivity for everyday QC measurements.

✓ 50 kV X-ray Tube and Multi-filter Capability

A 50 kV X-ray tube with multiple automated filters optimizes excitation conditions, supporting multi-element analysis with low limits of detection.

✓ Up to 15 Calibrations per Page

At the touch of a finger, multiple calibrations are available to support a wide range of applications and sample types.

✓ Installation Made Easy

Designed to be user-installed and maintained, minimizing the need for on-site service during setup.

✓ X-ray Tube Conservation

Because the X-ray tube operates only during data collection, wear is reduced and long-term operating costs are lowered.

✓ Self-contained System

Built-in computer and printer eliminate external PCs or peripherals, simplifying setup and improving suitability for industrial use.

✓ Digital Data Output

Ethernet (RJ-45) and USB support data export in CSV or PDF formats for easy reporting, archiving, and integration into existing systems.

✓ LIMS-ready Connectivity

Digital outputs and standard formats support straightforward integration with LIMS.

✓ Tool-free Safety Film

No tools are required to change the protective film over the optical kernel, enabling easy replacement after leaks or spills.

✓ Single Position or Autosampler

Use the standard single-position sample stage or add an optional autosampler for higher throughput.

✓ Compact, Space-saving Design

A smaller, lightweight benchtop design fits easily on crowded plant floors and in QC labs with limited space, and with an optional carrying case, it's ready for on-site testing.

✓ Lab-quality Performance

A 50 kV X-ray tube, graphene window SDDs, and optimized optics deliver high resolution, excellent repeatability, and low limits of detection for routine and demanding QC.

✓ Removable Sample Trays

Interchangeable autosampler trays can be pre-loaded and swapped in and out to support 32 mm and 40 mm cups and increase sample throughput.

✓ Touchscreen Interface

A 7-inch HD industrial touchscreen with clear, icon-driven navigation and a guided flow bar Application Builder that makes routine measurements fast and consistent, even for new users.

✓ Built-in Printer

The integrated printer provides fast hard-copy results directly at the instrument when and where they are needed.

✓ Detector Protection Mechanism

A user-replaceable plastic film in the single-position sample holder helps safeguard the instrument in the event of sample leaks or spills.

Single position sample holder showing "easy snap" leak protection mechanism.

NEX QC II SERIES

Designed to support a broad range of materials and testing environments.

Flexible Performance Across Industries

The NEX QC II Series supports routine quality control, process monitoring, and regulatory checks across a wide range of industries. With non-destructive EDXRF analysis from sodium (Na) to uranium (U) in solids, liquids, powders, coatings, and thin films, it provides a versatile solution for plant floors, manufacturing lines, QC laboratories, and remote testing locations.

✓ Petroleum Applications

NEX QC II Series provides dependable multi-element performance in a compact system ideal for field labs, terminals, and production facilities that need rapid verification of sulfur and other key elements in petroleum products. Designed for simplicity and affordability, it offers low per-sample costs, minimal consumable requirements, and supports compliance with common methods including ASTM D4294, D8252-19, ISO 13032, and ASTM D5059.

✓ Silicone Coatings

NEX QC II Series analyzers are well suited for at-line measurement of low silicone coating weights and metal-catalyzed silicone release coatings. They deliver rapid results, including ultra-low silicone coating weights and key catalysts such as tin (Sn), bismuth (Bi), titanium (Ti), and platinum (Pt) without the need for helium or special sample cups. Simply place a test coupon in the sample chamber, and simple operation with a built-in printer supports fast, documented QC right at the line.

✓ Metal and Conversion Coatings

NEX QC II Series analyzers deliver quick elemental analysis for metal coatings applied by chemical or electrochemical processes, and for conversion coatings where both coating thickness and bath composition must be controlled to meet specifications. Their compact, user-maintained design offers a cost-effective choice for facilities with limited space or budget that still require reliable metal coating measurements.

Everyday Industrial Applications Where NEX QC II Supports Fast, Non-destructive Elemental Analysis

✓ Wood Preservatives

NEX QC II Series analyzers provide a fast, reliable way to test preservatives and pigments, measuring key elements such as copper (Cu), arsenic (As), and chromium (Cr) to minimize waste, reduce costs, and maintain treated wood quality. Multi-element capability, simple sample presentation, and an easy-to-operate system support efficient routine QC and help facilities meet AWPA A9 standard methods with a cost-effective benchtop solution.

✓ Recycling and Waste Applications

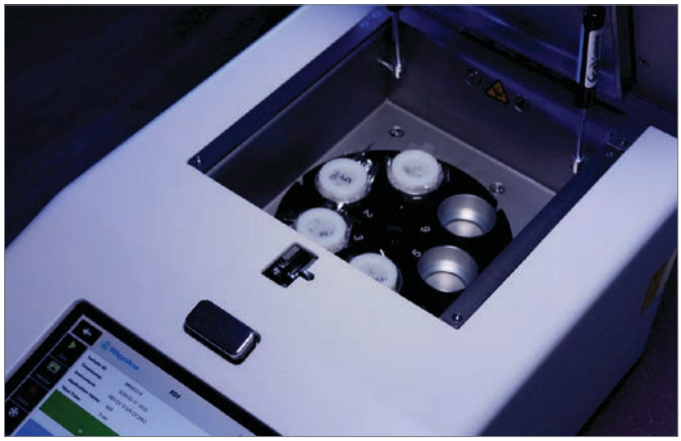
Broad material coverage supports screening of recycled materials, waste streams, and used oils for resource recovery, safe end-use, or compliant disposal, with fast multi-element measurements to verify concentration levels and support compliance. The NEX QC II Series adapts as materials, monitoring needs, and regulatory requirements evolve.

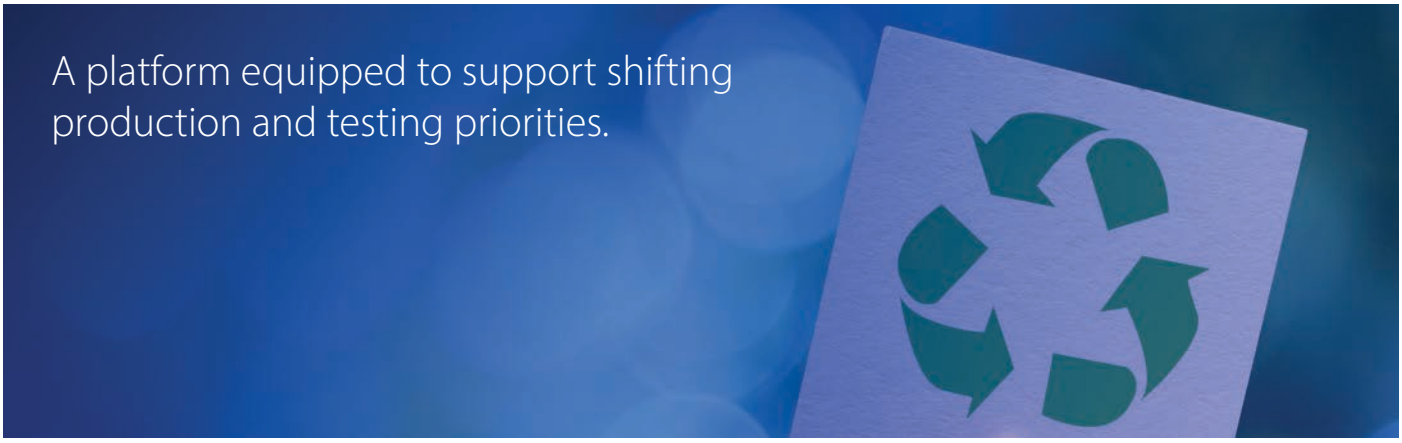
✓ Mining and Refining

EDXRF provides a fast, simple way for mining operations, foundries, smelters, and mills to measure elemental composition in ores, feeds, slags, tailings, and related materials. NEX QC II Series analyzers support routine checks and at-line control of both processes and incoming/outgoing materials, and also serve as ideal, affordable backup analyzers alongside primary laboratory systems.

✓ One Platform, Many Applications

Wherever elemental data is needed for quality control, the NEX QC II Series brings practical benchtop EDXRF to everyday work. Its flexibility and broad multi-element capability allow you to adapt as materials, processes, and requirements change, making it a dependable tool for a wide range of current and future applications.





Configure the NEX QC II Series to Fit Your Process

Options and Accessories Overview

The NEX QC II Series can be configured to match a variety of sample types, throughput needs, and installation environments. From single-sample setups to automated batch analysis, available options allow the system to be tailored to your specific QC needs.

Sample Spinner

For coarse-grained, inhomogeneous, or rough-finished samples, rotation during analysis helps average the sample presentation and minimize diffraction peaks. An optional single-position 32 mm sample spinner (shown at top right) provides smooth, quiet operation at 32 rpm and features a durable design for routine use. In autosampler-equipped models, the spinner can be installed in place of the automatic tray when needed.

Autosamplers

The system includes a standard single-position 32 mm sample holder and a large object adapter for flexible sample handling. For higher throughput, two optional automatic sample changers are available. A six-position version accommodates 32 mm samples (shown at middle right), while a five-position version accepts 40 mm samples (shown at bottom right). Both use industry-standard XRF sample cups, and additional trays can be preloaded to streamline batch analysis.

Helium Purge

An optional helium purge improves light element performance. The system operates at a helium flow rate of 0.2 SLM.

Trusted Technology, Next Generation

Since its introduction in 2011, the NEX QC Series has supported quality control programs across a wide range of industries. Backed by decades of EDXRF expertise and Rigaku's history of innovation, it has delivered reliable elemental analysis with a focus on practical performance, ease of use, and dependable operation.

The new NEX QC II Series represents the next step in that evolution. Building on a proven foundation, this second-generation system refines the detector platform, optical design, and electronics to deliver improved measurement performance and greater operational efficiency.

Rather than a departure from what users trust, it is a thoughtful advancement designed to meet today's QC demands while maintaining the reliability that defined the original system.

First-generation NEX QC Series

Second-generation NEX QC II Series

Specifications

General
Direct excitation energy dispersive X-ray fluorescence (EDXRF)
Analytical range Na to U
PPM to % levels

Excitation
X-ray tube, end window transmission with Ag anode
50 kV X-ray tube
4 W max power
6 tube filter positions
X-rays only on when analyzing

Detection
High-performance, large-area SDD with graphene window
<170 eV resolution, 20 mm^2 active area (NEX QC II)
<135 eV resolution, 30 mm^2 active area (NEX QC II+)
Peltier electronic cooling
User configurable shaping times for optimum balance of spectral resolution and count rate

Sample chamber
Large 190 x 165 x 60 mm sample chamber
Single-position 32 mm sample aperture with leak protection
25 mm ID flat sample ring for large samples

Environmental conditions
Ambient temperature 10 – 35°C (50 – 95°F)
Relative humidity ≤85% non-condensing
Vibration undetectable by human
Free from corrosive gas, dust, and particles

Software
Icon-driven graphical user interface
Simple flow bar design to create new applications
Qualitative and quantitative analysis
Single or dual point standardization
6 pre-configured validation schemes with user defined bounds
User-configurable repeat analysis
Live results update
Analysis Complete Remove Sample warning feature
Data export function with LIMS capability
Application method export/import to USB or network folder
Password protection
Multi-language

User Interface
7″ HD touchscreen interface
Embedded computer
LINUX® operating system
Internal thermal printer
USB and Ethernet connections

Backed by Rigaku

Since its inception in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. With hundreds of major innovations to their credit, the Rigaku group of companies are world leaders in the field of analytical X-ray instrumentation. Rigaku employs over 2,000 people worldwide in operations based in Japan, the U.S., Europe, South America, and China.

Warranty

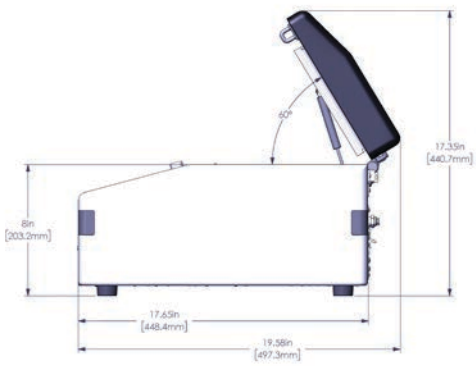
Our Guarantee
Applied Rigaku Technologies offers a 2-year warranty on all EDXRF spectrometers it produces. This industry-leading manufacturer's warranty shows our commitment to quality and displays our dedication to maximizing uptime for our customer's processes and applications.

Options

Helium purge	Flow rate 0.2 L/min (during analysis only) Helium purity 99.95% Tubing 6 mm OD x 4 mm ID, 10 meters
Single-position 40 mm sample aperture	
Single-position 32 mm sample spinner	
6-position automatic sample changer (32 mm samples)	
5-position automatic sample changer (35 – 40 mm samples)	
Uninterruptible power supply (UPS) 865 W / 1500 VA battery backup / transient surge protection	

Spectrometer data

Single phase AC	100 – 240 V, 1.15 A (50/60 Hz)
Dimensions	28.7 (W) x 46.5 (D) x 26.2 (H) cm (11.3 x 18.3 x 10.3 in)
Weight	15.5 kg (34 lbs)



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Applied Rigaku Technologies
1405 Arrow Point Drive, Suite 1301, Cedar Park, TX 78613 USA
T +1-512-225-1796 | **F** +1-512-225-1797
www.RigakuEDXRF.com | info@RigakuEDXRF.com

Rigaku and its Global Divisions
www.Rigaku.com | info@Rigaku.com

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Elemental Analysis by X-ray Fluorescence

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