



When results matter

SPECTROLAB

LAVM12
LACM12

Stationary Metal Analyzer

Ultimate performance for the
next generation of metal analysis



AMETEK[®]
MATERIALS ANALYSIS DIVISION

SPECTROLAB

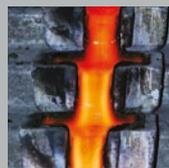
SPECTROLAB

HIGH-PERFORMANCE ARC/SPARK OPTICAL
EMISSION SPECTROMETRY (OES) ANALYZERS

The new standard of excellence
for research and process control



The new generation of SPECTROLAB OES analyzers delivers the greatest innovation in elemental analysis yet. Stability, flexibility, and analytical functionality combine in a high-performance package that other spectrometer manufacturers can't match. Available in hybrid PMT/CCD and breakthrough new all-CCD versions, this analyzer sets a new standard for R&D and process/quality control. SPECTRO has spent more than 30 years developing the world's leading OES instruments. A host of improvements, enhancements, and groundbreaking technological innovations make its new spectrometer the ideal analytical answer for primary metal producers and other critical applications. Today, when time, precision, and flexibility are critical, choose SPECTROLAB.



SPECTROLAB

All the advantages of unparalleled performance

Two advanced versions: hybrid or all-CCD

SPECTROLAB offers a pair of innovative approaches to high-performance OES. A hybrid model combines two technologies — analog photomultiplier tube (PMT) detectors and digital charge coupled device (CCD) sensors — to present an ultra-accurate simultaneous measurement. It's ideal for R&D, trace element measurement, and precious metals analysis. Alternatively, a new highly sophisticated, all-CCD model provides fast, accurate, ultra-flexible analysis for multi-matrix applications. It offers impressive results on process control and quality control of fabricated and finished goods.

Ultimate elemental flexibility

Forget time-wasting, cash-consuming delays to add new elements via extensive hardware modifications. In most cases, SPECTROLAB can eliminate hardware reconfigurations. Optional software-extendable configuration lets users change the instrument's elemental setup without having to measure standard samples for calibration.

Ultra-low limits of detection

The unit offers a new low in limits of detection, thanks to innovations such as improved background correction. Depending on application and analytes, SPECTROLAB can easily ascertain trace values in single parts per million (ppm).

Ultra-high speed of measurement

SPECTROLAB's designers took every opportunity to meet the metal market's need for speed. For example, a high-energy plasma generator is coupled with SPECTRO's unique dynamic preburn process, which shortens measurement time on better-quality samples. Results: lightning-fast setup, accelerated sample throughput, and extremely low time to measurement in many applications.

Affordable cost of ownership

Unique ICAL software saves on recalibration samples. UV-PLUS purification eliminates expensive argon purging or vacuum pumps. Component relocations, advanced diagnostics, and other improvements make maintenance easier and prevent expensive unplanned downtime. SPECTROLAB brings new levels of savings to high-performance spectroscopy.

Excellent ease of use

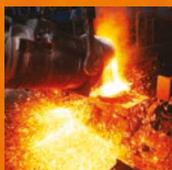
Even for less experienced personnel, SPECTRO's new user interface takes effortless operation to a new level. Instead of multiple dialog boxes, a simplified operator view presents clear choices via dedicated toolbar buttons. And instead of complicated method development, new application profiles are tailored to predetermined user requirements.

Easy access and maintenance

For this SPECTROLAB generation, many components — including the readout system, other electronics, and the power supplies — are located in a separate compartment on top of the instrument. Thus temperature control is made even simpler, while easy access for service is ensured.

Spectacular stability

Metal producers can't afford unreliable results. Inconsistent analyses yield spoiled batches and costly, time-consuming rework. Fortunately, SPECTROLAB provides stability without compromise. Unlike conventional models, its sealed, no-purge optical system maximizes light transmission stability, even in the far UV. Its software utilizes sophisticated online drift correction measures. And the instrument's designers chose the optimum correlation between analytical and reference lines — for the most stable measurement approach possible.



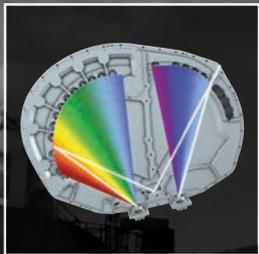
Standard-setting technology

SPECTROLAB established new benchmarks with the introduction of a pioneering hybrid PMT/CCD optical system in 2007. SPECTRO has continuously improved both technologies since.

Two innovative optical approaches

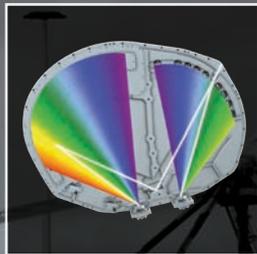
Both the third-generation hybrid and brand-new all-CCD SPECTROLAB models offer excellent optical performance for metals industry applications. The hybrid version provides unbeatable precision, flexibility, and stability for specialized R&D laboratories. It's especially suitable for testing new materials, and for precious metals trace elements and inclusions. The all-CCD version delivers impressive reproducibility, stability, and speed, along with advantages such as fast, simple iCAL calibration. These make it ideal for time-critical applications such as process control and quality control inspection of incoming/outgoing materials. And SPECTROLAB's patented* capability to determine carbon content in nodular cast iron minimizes the need for costly combustion analyzers.





CCD OPTICS

In the revolutionary new all-CCD model, one section has a wavelength range of 120-240 nm in the first spectral order; a second section has a range of 240-766 nm in the first order.



HYBRID OPTICS

In the hybrid model, the PMT segment has a wavelength range of 170-500 nm, with second order coverage for O₂, H₂, and N₂. The CCD segment has a range of 120-320 nm; in addition, an optional CCD optic has a range of 230-766 nm.



IMPROVED ENVIRONMENTAL CONTROL

Advanced insulation and software-controlled air cooling stabilize the optical system atmosphere at 20° C (68° F) for reliable operation and accuracy. Electronic components, power supplies, and the readout system are isolated atop the chassis, and separately cooled, thus preventing negative temperature effects.

A complete spectrum of innovation

1] Rapid readout system

This redesigned feature offers high-speed, even more flexible data transmission to support SPECTROLAB's superlative analytical performance. Users may choose regions-of-interest-only measurements for the fastest possible results. For R&D and unknowns analyses, the system also offers complete wavelength scans. The SPECTROLAB PMT model's advanced single spark evaluation (SSE) capability lets it deliver unprecedented precision in inclusions analyses, for applications such as precise determination of steel quality.

2] Unique argon system

A new distribution system in the CCD version improves argon cleaning flush flow to dispose of metal residue and help ensure optimum measurement conditions. In addition, SPECTROLAB reduces argon consumption with a new spark stand configuration, as well as improved positioning of the argon distribution block. Finally, only a single copper tube connects the spark stand to the argon supply, minimizing leak potential.

3] Powerful plasma generator & ignition board

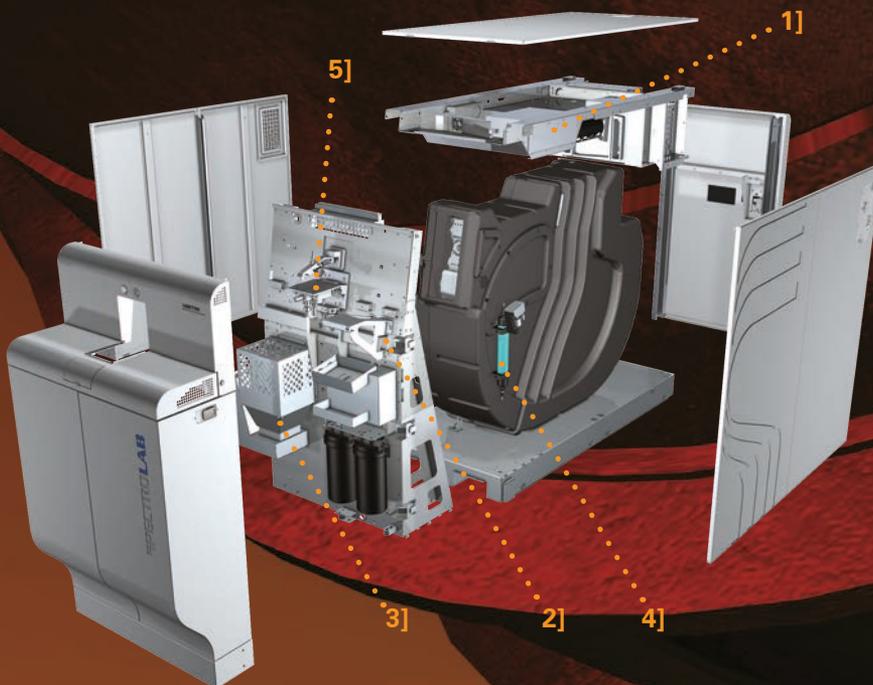
The exceptionally robust, high-energy plasma generator produces an extremely stable discharge for sample excitation. Digitally guided control of plasma conditions provides impressive resolution, high fidelity, and accelerated results. To avoid high-voltage interference, the generator and ignition board are sited near the spark stand. The system creates ideal plasma conditions for optimum analytical performance.

4] Cost-saving UV-PLUS purification

SPECTROLAB incorporates a newly modified version of SPECTRO's proven UV-PLUS sealed gas purification technology. Utilizing an exclusive long-lasting filter cartridge, it eliminates expensive argon purging. It also avoids outside contamination of the optical system. Result: assurance of optimum measurement conditions.

5] Redesigned spark stand

For this latest SPECTROLAB generation, a new spark stand helps further reduce optical system argon consumption and metal residue. The system monitors how many measurements are performed and how much material is consumed, to furnish convenient software reminders if maintenance is required.



Superior user experience

Clearly intuitive operation

The unit's new Spark Analyzer Pro 64-bit software presents a revolutionary new level of operator interface simplicity. The program includes straightforward, self-explanatory icons and a familiar, ergonomic approach with little learning curve. Only authorized users can access the method development / knowledge base module for more complex tasks.



Efficient diagnostics, timely reminders, M2M

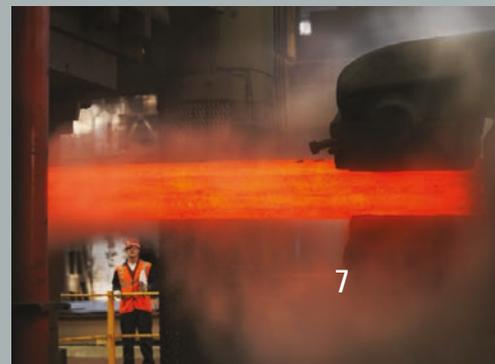
SPECTROLAB maximizes instrument availability with a new, improved diagnostic system. Enabled by automatic logging and monitoring features, handy maintenance reminders can flag everything from optical system pressure and temperature to voltage supply, and more. Optional machine-to-machine (M2M) remote diagnosis makes possible fast, responsive issue resolution.

Easy, cost-saving standardization

With conventional analyzers, standardization demands multiple samples per matrix. By contrast, the new all-CCD SPECTROLAB version takes advantage of SPECTRO's proprietary calibration logic engine iCAL and requires just two samples and 10 minutes for the complete system standardization. Results: increased instrument availability — and lower total cost of ownership.

Ultra-flexible configuration

When specifications change or new elements must be measured, traditional spectrometers demand physical alterations to their detectors — an expensive and time-consuming proposition. But with the new SPECTROLAB, CCD sensors capture the spectrum for all relevant elements. So new configurations can often be activated via software alone. It's another way SPECTROLAB delivers unheard-of flexibility.





Advanced analysis from the full SPECTRO family

The latest generation of flagship SPECTROLAB instruments leads today's most comprehensive suite of advanced elemental analyzers. These include SPECTROMAXx, the benchmark device for workhorse metals analysis, as well as the SPECTROTEST mobile metals analyzer and SPECTRO xSORT handheld XRF spectrometer. Whatever the product, SPECTRO's more than 30 years of experience in elemental analysis and unparalleled record of technological innovation ensure the best results in the business.

Superior support with comprehensive AMECARE services

For metal producers, productivity depends on continued availability of analysis. The AMECARE Performance Services program maximizes uptime for SPECTROLAB and other SPECTRO Analytical products.

The program is staffed by more than 200 experienced service engineers in 50 countries. They provide high-value, customized services designed to ensure optimum performance plus the longest possible equipment life. Ask about AMECARE proactive performance maintenance, performance upgrades, applications solutions, consultation, targeted training, and ongoing support.



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* US Patent No.: US 8,976,350 B2