ThermoFisher SCIENTIFIC

Automation systems for OES and XRF

Total solutions for ultimate productivity

thermo scientific

A pioneer in automated analysis systems

Our company was the first to recognize the opportunities in the metals and mining industries for automated sample preparation and analysis as part of quality control processes. Since the mid-1980s, this has led to the design and development of flexible automation systems integrating the most advanced technologies and productivity enhancement tools such as robots.

We have continued to enhance our automation solutions for optical emission spectrometers (OES) and X-ray fluorescence (XRF) spectrometers to meet the stringent needs of the industry and offer even better reliability and improved performance while remaining cost-effective.

Today, the Thermo Scientific series of SMS automation systems span the entire industry spectrum, from large aluminum smelters to modern steelworks, including foundries and metals processors with varied capacities and needs.

Thermo Scientific XRF and OES automation

Choice and flexibility—A solution tailored to your specific needs

The Thermo Scientific series of SMS automation products include entry-level systems such as the Thermo Scientific™ ARL™ SMS-Omega XRF Instrument, and Thermo Scientific ARL SMS-XY Automation for XRF and SMS applications through the ARL SMS-3500 is highly customizable with a flexible layout of spectrometers and sample preparation machines. The range also includes the ARL SMS-3300 Automation System in the single or dual versions for two instruments. The ARL SMS-2300 is the best entry-level option for sample automation.

If you are eager to achieve more in less time, meet tighter and tighter product specifications and time schedules without increasing overhead costs, then our automation solutions will help you to:

- Increase analysis dependability by eliminating human involvement and improving the reproducibility and accuracy of results
- Eliminate differences between operators and subjective factors that might influence results
- Increase productivity
- Shorten response time leading to increased production turnover and capacity at a reduced cost
- Increase sample cadence to process more samples
- Reduce the costs of sample analysis by eliminating labor

More than just instrumentation complete systems

Our automation solutions are not merely limited to instrument automation but also include comprehensive analytical data management tools and integration with metals sample preparation systems. Large laboratory automation systems using third-party air tubes for sample transport and multiple lines sample preparation and distribution systems are also available.

The lab in a box for in—situ analysis

Automated OES and XRF spectrometers can also be installed on the production floor to provide measurement and control at the point of manufacture with minimum infrastructure costs. When no protected room is available, the system is supplied in a transportable, air-conditioned, and reinforced container specially designed to operate like a process sensor or on-stream analyzer. Once registered and introduced via a feed box fitted to the outside wall of the shelter, samples are processed automatically at each stage of the analysis. This includes preparation as an option, evaluation of the analysis surface quality, analysis, result distribution to the required destinations, result storage, sample labeling and filing.

An undisputed reputation for excellence

With more than 1,000 robotized OES and XRF in operation worldwide, our company is definitively the preferred supplier for automated spectrometer analysis. These installations have set a high standard of reliability and durability worldwide.

Major performance gains for better reproducibility and traceability

With Thermo Scientific SMS automation systems, samples can be prepared and analyzed simultaneously. This multitasking operation is impossible to achieve with a manually operated system. The traceability of the quality control activities is improved as all significant events can be recorded with appropriate time stamps for archiving purposes.

There are procedures to ensure that the automatic spectrometers permanently deliver quality results are applied systematically and independently of the operator's skills and motivation. The system immediately triggers corrective actions when necessary to prevent scrap and rework in production.

The influences of different operators' practices are eliminated (e.g., experience, educated guessing, specific working habits). Dead times are also eliminated, which increases the spectrometer's availability for sample analysis.

If time is critical to your operation, and every second lost results in a loss of revenue, then automation is the ideal solution to fully maximize the potential of your OES and XRF spectrometers.

Protect your investment

Synergy and reduced automation complexity

Thermo Scientific SMS automation systems and laboratory management systems share the same core software. They also incorporate many common features which reduce the complexity of a large automated laboratory. This also facilitates new developments, greatly simplifies software testing and industrialization, and enables us to provide uniform and harmonized laboratory automation tools.

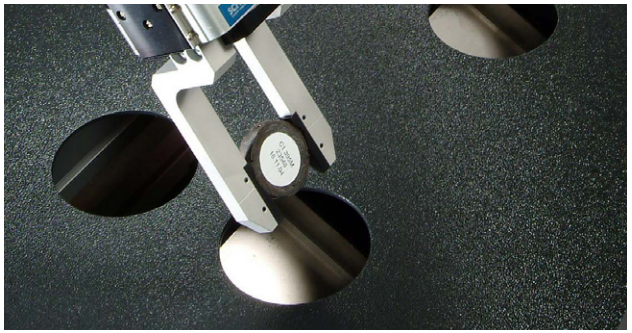
An open and evolving automation platform to ensure full protection of your investment

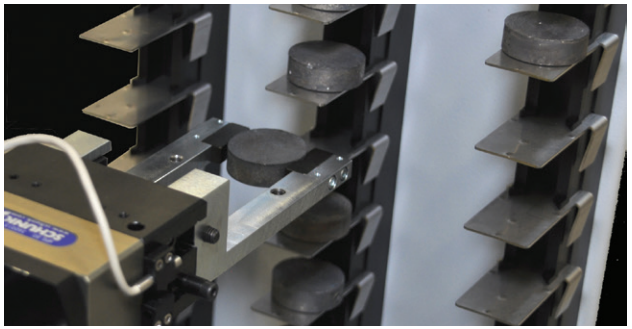
Thermo Scientific SMS automation systems are he first generic automated spectrometer solutions designed, industrialized, documented, tested, manufactured and maintained according to ISO 9000:2015 procedures.

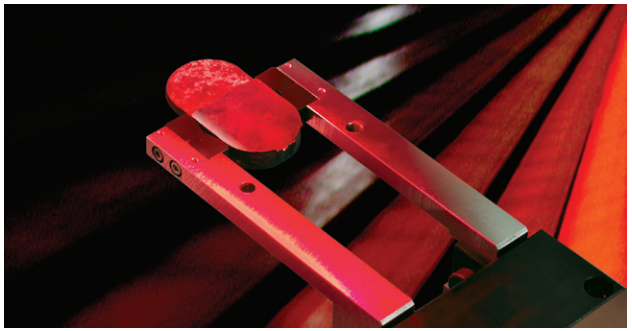
They benefit from a single software platform that covers all applications. This allows releasing the most thoroughly verified functionality ever produced for all system components to achieve both high availability and uptime.

Furthermore, our SMS automation solutions are designed as standard products with very comprehensive functionality and total operational flexibility. Easy system fine tuning and customization before, during, and after installation allow users to take advantage of their experience and adapt to changing or new requirements that are often difficult to predict and anticipate.

We are firmly committed to further developing our automation solutions solutions, making them completely future-proof. Updates are regularly made available to customers whenever new capabilities are implemented.







Products

Simple, affordable, and highly reliable

The ARL SMS-Omega, SMS-XY for simultaneous and/or sequential XRF and SMS-PFX for ARL PERFORM'X XRF Spectrometer

- Circular Omega magazine or large XY magazine for sample handling
- Oxide and metals/oxide versions
- Sample registration via terminal and/or network
- Fully unattended instrument operation
- Control of sample preparation
- Built-in automated procedures for spectrometer performance verification and fine-tuning
- Easy introduction of manual samples via the circular Omega or the XY magazine
- Sample labeling and radioactivity measurement options

Entry-level for OES or XRF Automation

The ARL SMS-2300 System

- Compact, efficient with fully reproducible sample processing speed and accuracy
- Suitable for ARL iSpark, or ARL 9900 XRF spectrometers.
- XRF analysis without the need for cassettes
- Compatible with automatic sample preparation machines
- Re-preparation of difficult metals production samples
- Vision system to investigate the quality of prepared sample surfaces before analysis
- Large magazine for standards (up to 90 samples)
- Labeling of production samples and detection of radioactivity
- Low maintenance, high availability
- Entirely customizable to cover the most varied applications
- Ideal for QuantoShelter installation
- Large installed base with proven performance leading to a short payback

A versatile single or dual version

- All of the ARL SMS-2300 features are included
- Suitable for one instrument in ARL SMS-3300 single version
- Possibility of two instruments working in parallel with ARL SMS-3300 dual version
- Flexible dual version configuration; either OES spectrometer Backup or OES and XRF option
- Possibility for field upgrade from single version to dual version with little effort
- High sample cadence (more than 1,000 samples per day)

High flexibility for increased analytical power

The ARL SMS-3500 System

- Fast and integrated XRF and OES analysis
- Double OES version
- Up to two sample preparation machines
- Single source supply
- Flexible instrument integration and operational modes
- Heavier sample workloads easily accommodated
- Simplified operation (single system monitoring screen)
- More comprehensive and integrated automation solution

The lab in a box for in-situ analysis

The ARL QuantoShelter cabin

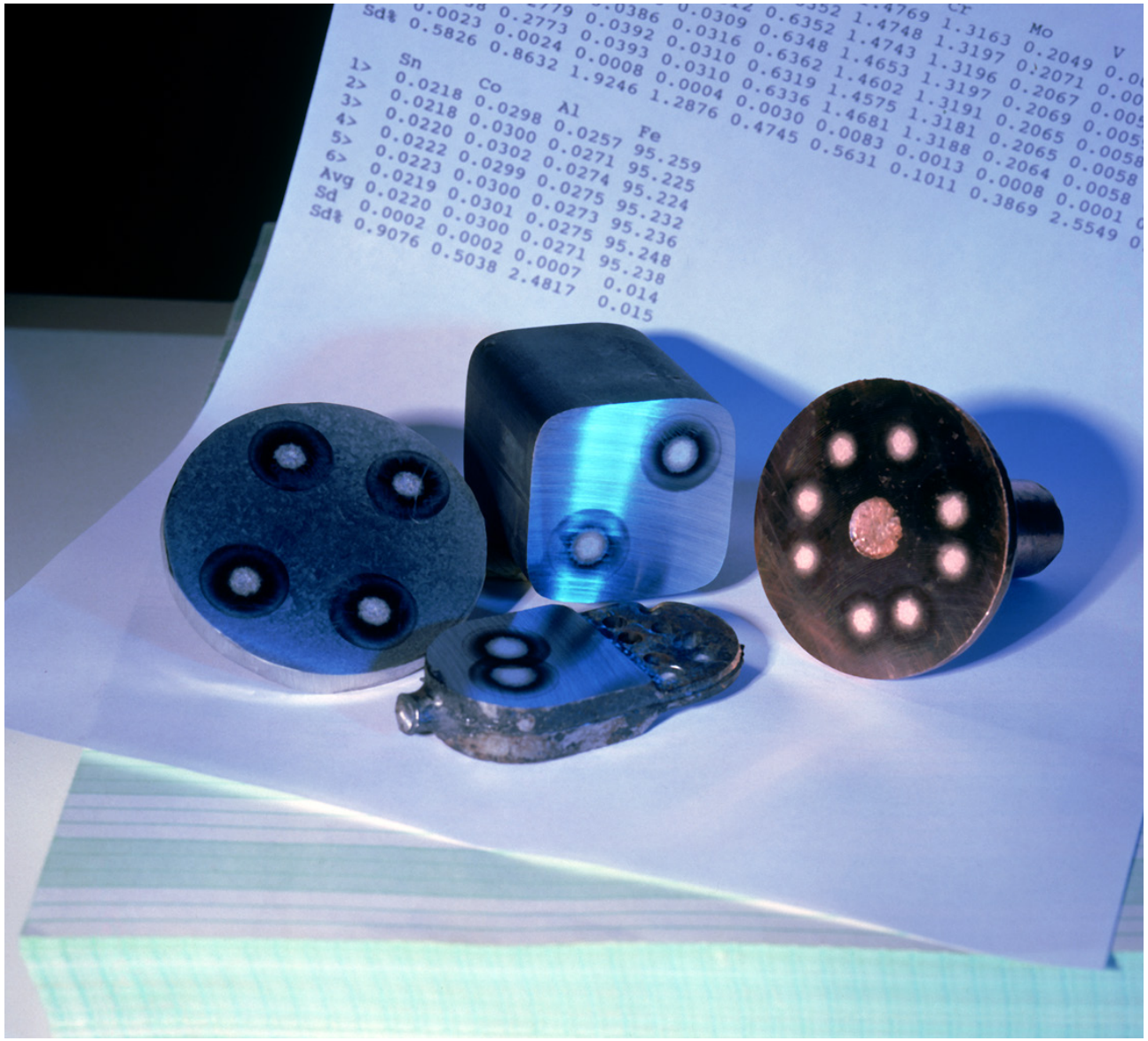
- Suitable for SMS-2300 and SMS-3300 Systems, for both the single and dual version
- OES and XRF versions
- Choice of sample preparation technique
- Response time of less than two minutes
- Minimum maintenance
- Remote control capability

Specialized products

A unique product, service, and support offering backed by experts worldwide

X-ray fluorescence (XRF) and optical emission (OES) spectrometers with their automation systems for worldwide distribution.

Thermo Fisher Scientific is a leader in XRF and OES automation with over 30 years of experience analyzing, planning, and implementing automation systems. Our consultancy services are available worldwide to help you evaluate the best solutions for your operation. Then, once your automation solution is selected, our highly experienced engineers will make sure that you get all the support you need during the implementation stage of your project and during the system's lifetime.



A specialized laboratory management system

The Thermo Scientific Software

- Designed specifically for high-speed metals production control labs
- Result acquisition, merging, transmission, storage in less than one second
- Adapts to your instruments and working habits
- Choice of automation level (operator driven system or unattended operation)
- Facilitates compliance with laboratory quality system
- Powerful result database with multi-user access option
- Full range of result processing functions

Thermo Scientific spectrometers that can be automated

Our company provides a full range of optical emission spectrometers (OES), X-ray fluorescence (WDXRF, EDXRF, XRF with full XRD), and X-ray diffraction instrumentation (XRD) that cover every aspect of materials analysis from routine process control to highly specialized research applications. The following models can be fully automated with the Thermo Scientific automation systems described in this brochure.

ARL ispark Metals Analyzer

High-performance, optical emission spectrometer including determination of inclusions.

ARL PERFORM'X XRF Series

Advanced WDXRF system with small spot analysis and elemental mapping capabilities.

ARL ispark Fire Assay Analyzer

Fast analysis of fire assay lead buttons by optical emission with ultimate performance.

ARL 9900 XRF with full XRD Series

Simultaneous speed and sequential flexibility for process and quality control by X-ray fluorescence and X-ray diffraction in the same instrument.

ARL OPTIM'X XRF Spectrometer

Unique WDXRF platform with sequential and/or simultaneous capabilities.

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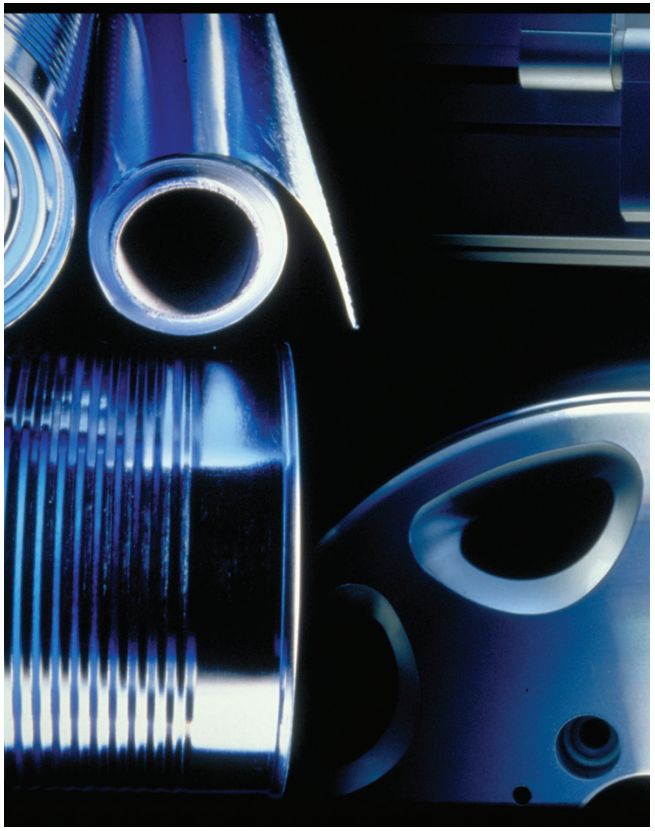

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