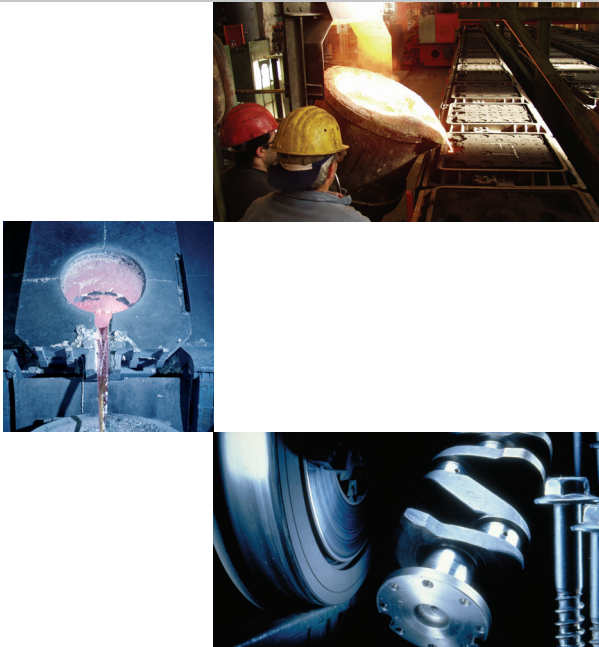


Automated Metals Analyzer with ARL SMS-2000 EL

Entry Level Version

The Thermo Scientific ARL SMS-2000 EL has been specifically configured to offer foundries and other small and mid-sized metals producers a way to automate sample analysis. Increased automation with reduced labor involvement and qualification means increased analysis dependability and quality while eliminating bottlenecks affecting production capacity.

Affordable and expandable, this system is a unique opportunity to exploit proven technologies to bring your quality control operation a step ahead.



Fully automatic metals analysis at entry level cost

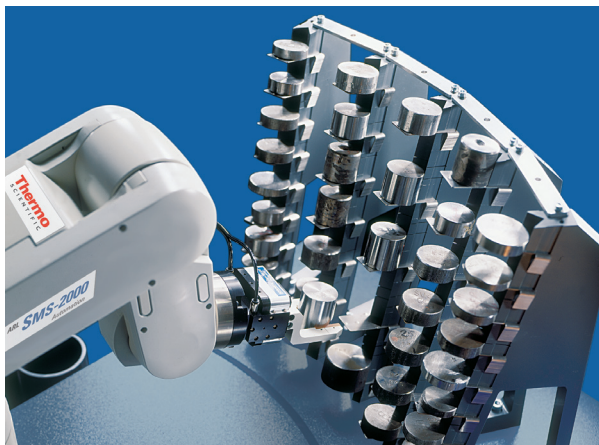
With an installed base of more than 350 systems worldwide, the automated Thermo Scientific optical emission spectrometers with ARL SMS-2000 are recognized today as the reference in terms of reliability, lifetime and performance. Large primary metals producers have been leading the way in using most of these systems.

If in large companies, the analysis is carried out by specialized laboratory personnel, it is often not the case in foundries and other smaller metals producers. The analyses are then performed by production staff. The reliability and the quality of the results are often proportional to the sample rate. However, the more infrequent the analysis and the higher the number of different operators, the more the results become dispersed.

The automated ARL 3460 metals analyzer with the novel ARL SMS-2000 EL thus releases the production personnel from the most delicate task: the analysis.

Once introduced in the system, the prepared samples are analyzed, filed and the results are distributed and recorded fully automatically.

With the ARL SMS-2000 EL, small to mid-sized producers in the metals industry can take full advantage of a technology reserved until now to the biggest companies.



Large capacity magazine for standards, control and monitor samples

The ARL 2000 EL : affordable, extremely reliable and expandable

Increasingly severe and tighter product specifications

Very too often the need for automation is related to high sample rates and to labor cost savings.

However, the growing demand for automation in countries where labor costs are very low shows that these criteria are not decisive anymore compared to the improved quality of the results and to the reduction of sample processing times.

By releasing personnel from the routine analysis of production samples, the ARL SMS-2000 EL entry level version contributes to major analytical performance improvements and reduced production costs:

- Pre-defined and documented analysis procedures are applied systematically. This facilitates the implementation of a laboratory quality system in compliance with ISO standards for instance
- The number of variables affecting the reproducibility of results is reduced
- Scrap reworks due to human factors and differences between operators are eliminated
- The increased analysis precision allows to work closer to the low grade specification limits to save on expensive alloying material

On the other hand, the competence of the available staff is often sufficient to prepare the samples. Consequently significant investments in entirely new automatic sample preparation may be difficult to justify given the high requirements on uptime and durability for such mechanical equipments.

Expandability to grow with your business

While taking advantage of the reliability, performance and operating life of the full ARL SMS-2000 system, the ARL SMS-2000 EL entry level version provides more flexibility to meet basic application requirements and tight budgets. The following options are available to expand the entry level version into a full ARL SMS-2000:

• Customized and flexible sample registration

The basic ARL SMS-2000 EL sample registration scheme is very similar to what is available for the registration of

samples in a manual instrument. As an option, the system can be factory configured, customized and fine tuned according to your particular needs before delivery. The operator is guided through your sample registration procedure and validity checks are applied to avoid mistakes. Samples lists and pre-defined choices allow for reducing typing to a minimum and to automate the selection of operational parameters such as analytical programs.

• Unattended instrument monitoring

Ensuring that the automated metals analyzer permanently delivers quality results is another important function which can be fully automated.

This SMS-2000 EL option provides a large capacity and universal magazine for the storage of up to 45 control samples, standards and monitor samples. Control samples can be supplied by our company to regularly verify the instrument performance and to detect possible anomalies.

Automatic instrument standardization is triggered by the system when necessary using standards called setting-up samples.

Alarms are produced when manual interventions are required to prevent the system going out-of-control.

Monitors can be used to align the instrument response on reference values for specific alloys.

For certification purposes, the instrument analytical performance can be permanently recorded and visualized in the form of control charts (SPC-Full option).

The SPC-Full software is not merely limited to the instrument monitoring; it can be applied automatically to production samples to evaluate the manufacturing performance in terms of grade specification limits and to identify production savings opportunities.

• Automatic sample preparation

When the sample rates increase, the manual preparation becomes the bottleneck. The preparation of samples must then be automated not to affect the production capacity.

Knowing the high requirements on uptime and durability for such mechanical equipments and aware that the global system reliability cannot be any better than that of the weakest link of the line, we offer the best sample preparation machines available in the market.

A choice of metals sample preparation techniques with a complete range of sample introduction peripherals including magazines allows selection of the right configuration based on your needs.

For the best possible speed of operation, the automation and the control of the sample preparation is then distributed to a second PC which works separately and independently of the Thermo Scientific metals analyzer PC.

• High end ARL 4460 metals analyzer

At the heart of the SMS-2000 EL system is the ARL 3460 metals analyzer, the most widely used optical emission spectrometer in the world with an installed base of nearly 6000 units.

When ultimate analytical performance and speed are required, the ARL 4460 metals analyzer is the ideal choice. It offers an enhancement to the ARL 3460 version to analyze carbon, nitrogen and oxygen in steels at low levels with the CNO option. It also performs metals cleanliness evaluations using the unique Spark-DAT extension.

Many more features and options

As a scalable entry level system, the ARL SMS-2000 EL also takes advantage of all the following extensions which are part of the ARL SMS-2000 automation series. They can be supplied initially or added as upgrades any time following installation:

- Up to 5 production sample shapes
- Labeling of production samples
- Vision system to select the best spark positions for difficult samples
- Sample collections and batches software for repetitive production samples series
- ISO compliant Security system
- Remote control
- Digital signals for communication with external customer's devices
- Automatic re-preparation of metallic samples which cannot be analyzed
- Sample radioactivity detection
- Larger magazine capacity for standards
- Registration of production samples from the list of samples announced by other computers or recorded on a network disk
- Chronological filing of production samples on chute(s)

A full range of automation solutions

Please contact your nearest Thermo Fisher Scientific office or consult our web site at www.thermo.com/elemental for more information about the ARL SMS-2000 EL version and about the other OES and XRF automation solutions available.