

Thermo Scientific ARL 3460 Metals Analyzer



Improving Productivity of Your Operations



The worldwide reference in optical emission
More than 5000 units installed since launch



Excellent sensitivity, reproducibility and accuracy



Best stability and reliability, minimal argon
consumption and lowest total costs of ownership



Line selection in the range 130 to 780 nm, allowing
analysis from low C, N and O to alkaline elements

ARL 3460

Exceptional History

For over 70 years, our company has set the standard for instrumental analysis of metals. A continuous stream of innovative products using optical emission and X-ray spectroscopy has been the cornerstone around which that long and successful tradition of leadership has been built. The first model of the Thermo Scientific ARL 3460 was launched in 1982 and it is, since then, the most widely used optical emission spectrometer in the world. The delivery of the 5000th unit was celebrated at the beginning of 2005.



Fast and Accurate

As a multi-channel optical emission spectrometer, the Thermo Scientific ARL 3460 is designed for fast, accurate metals analysis in:

- Primary metal producing plants
- Foundries, forges, mini-mills
- Casting operations
- Incoming material control
- Metals QC and R&D laboratories

The ARL 3460 is custom designed for meeting any customer specific requirements.

Unrivalled Reproducibility, Reliability and Stability

A well proven, one meter Paschen-Runge optics mounted into a vacuum stabilized cast iron body is at the heart of the system, providing unrivalled reproducibility, reliability and stability over both the short and long term. This brings the following advantages:

- Less time spent on recalibration
- More time available for the productive analyses

The cabinet is also ergonomically designed to allow the sample and its identification to be rapidly input by a standing operator, thus avoiding wasted seconds and further optimizing result turnaround times.

Highest Productivity, Lowest Costs of Ownership

Over the years the ARL 3460 has undergone constant improvements in analytical performance and has become the best tool in increasing your productivity. Due to continuous evolution of the optical components, electronics and software, we were able to decrease all costs of ownership.

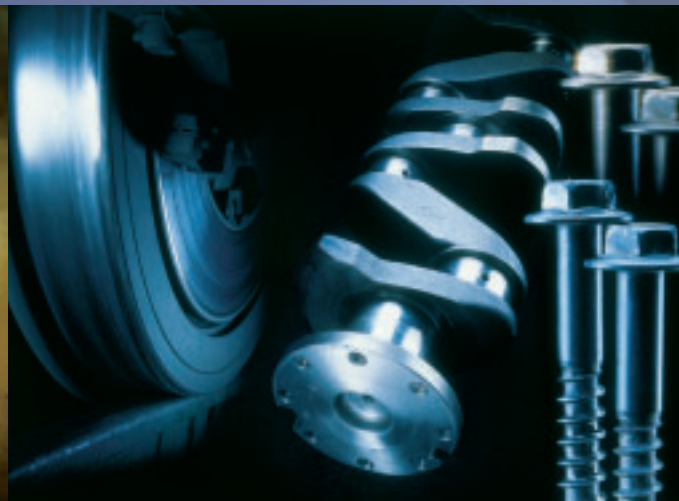
Unparalleled Performance

Our company has a wealth of experience in analyzing almost every type of metal and thereby can only provide an exceptional product that meets or exceeds every customer's requirements.

This experience extends to the less common metallic materials. When it comes to the analysis of materials producing toxic vapours, such as zinc and lead, the special exhaust system of the ARL 3460 ensures maximum safety of the operator.

Nitrogen/Oxygen Analysis

Traditionally handled by combustion analyzers, the analysis of N and O can now be performed by optical emission spectrometers. Today, more than 1000 installed ARL 3460 analyze nitrogen in steels and many analyze oxygen in steel and copper alloys.



Turn-Key Operation

The ARL 3460 is configured and calibrated in the factory before delivery.

We are fully aware that accuracy, which depends on the calibration of the instrument, is the most important figure of merit required from a spectrometer. Our factory calibrations performed with CARL (a very sophisticated multi-variable regression software tool that corrects for matrix effects as well as for spectral interferences), ensures the customer the highest possible accuracy. CARL provides an immediate «turn-key» instrument ready to analyze customer samples on the installation day.

WinOE Software: Simplicity Itself

WinOE software is a well recognized, highly easy-to-use, powerful and reliable software for metals analysis by OES:

- WinOE integrates the latest HTML/Internet technologies to simplify work with the spectrometer
- Shortcuts make it possible to start analysis with just one click or keystroke
- With large user-friendly icons, all functions are easily accessible
- Routine tasks are achieved quickly and efficiently by use of "push button" automated functions to guide the operation, or via "blackbox" intelligent modules running in the background with minimum (or no) user intervention

These are just a few of the many features contributing to the fast routine operation of WinOE.

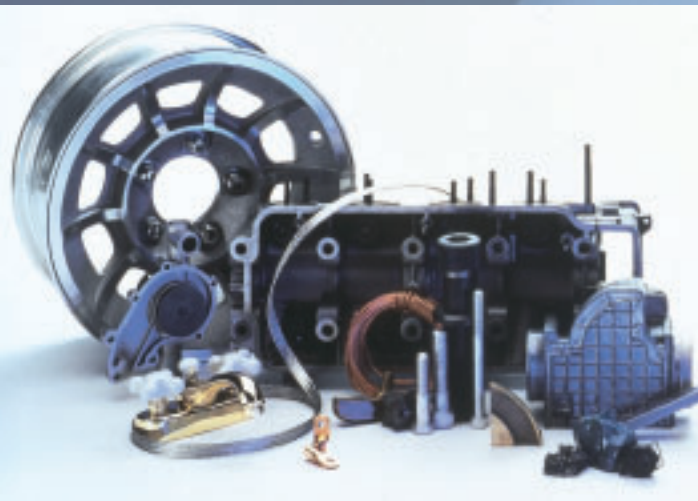
Your Partner In Productivity

Our company is not only your supplier, but also your partner in productivity who offers you complete analytical solutions backed up by the following statements:

- Regular «firsts» in spectrometry, software and automation for over 70 years
- Tens of thousands of OES & X-ray systems already supplied in the world
- Continuous improvements of analytical performance and shorter analysis times
- Easy integration to increase productivity
- Unrivalled reputation for quality, stability, reliability and long lifetime
- Easy to use, easy to upgrade
- The OES/X-ray manufacturing facility in Ecublens, Switzerland is ISO 9001:2000 certified
- Worldwide customer support network

To keep you informed about our latest developments, please visit

www.thermo.com/oes.

A screenshot of the WinOE software interface. It shows a data table with columns for Element, Intensity, and Concentration. The table contains several rows of data, including elements like Fe, Ni, and Cr. The interface also includes a menu bar at the top and a toolbar at the bottom with buttons for 'Analyze', 'Print', 'Exit', 'Help', and 'Quit'.

Improve The Quality of Your Products

The design of the Thermo Scientific ARL 3460 combines high performance with rugged construction and operational convenience with reliable operation. The productivity needed by a modern metals production is optimized by the system providing fast, accurate results, day-by-day, month-by-month and year-by-year. This will ensure the best quality of your own products.

ARL 3460 Specifications

Spectrometer

Spectrometer design:	Paschen-Runge vacuum polychromator made of special cast iron and temperature controlled to $\pm 0.1^\circ$ at 38° C. Maximum 60 channels.
Focal length:	1 m
Primary slit width:	20 μ m
Secondary slit width:	20, 25, 37.5, 50, 75, 100, 150 μ m
Type of detector:	Photomultiplier tube 28 mm, 10-stage side window tubes, fused quartz, glass or MgF ₂ windows
Grating type:	1080, 1667 or 2160 gr/mm, selected by analytical task
Resolution:	Dependent on grating, secondary slit and spectral order
Sample stand:	Argon flushed, water-cooled table with self-contained, closed loop cooling system

Electronics

Spectrometer control:	ARL MMB 386 Microprocessor utilizing CMOS technology with Status Measuring Card. A/D converters and attenuators included for each channel.
Programmable attenuators:	Up to 24, available as an option
Dynamic range:	10 ⁶ :1
Enclosure:	Built-in dust protection with high capacity cooling fans

Requirements

Ambient temperature:	16-30°C (62-86°F); maximum gradient 5° C/hour
Relative humidity:	20-80 %
Voltage:	230 V (+10 %/-15 %), single-phase with protective ground (5kVA regulator required if fluctuations exceed ± 10 %)
Current:	12 A, including PC, screen and printer
Frequency:	50 or 60 Hz
Grounding:	< 1 Ω
Argon:	> 99.996 % maximum 5 ppm oxygen (maximum 2 ppm oxygen for samples with high Si content). Optional argon purifier available and recommended for low carbon analysis. For VUV lines (nitrogen, oxygen, chlorine), argon purifier included

Consumption

Electrical power:	Max 3.5 kVA
Argon:	3.5 l/min during analysis, 0.35 l/min stand-by
Compliance to norms:	98/37/EEC Machinery 73/23/EEC Low voltage material 89/336/EEC Electromagnetic compatibility

Dimensions and weight

Overall dimensions:	166.5 x 91 x 119 cm or 65 x 47 x 36 inches, including excitation stand
Weight:	450 kg. or 992 lb approximately

Accessories and options:

Small samples analysis kit
Argon purification systems
Voltage stabilization systems
Uninterruptible Power Supply (UPS)
Suction device accessory to exhaust toxic fumes
Stand upgrade for semi-automatic operation
Data communication software options
Analytical results processing software options

In addition to these offices, Thermo Fisher Scientific maintains a network of representative organizations throughout the world.

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