



The robust aluminium mechanical optical system in optimised Paschen-Runge mount together with high constant internal temperature and pressure, allows the system to be independent from external environmental conditions.

The readout system simultaneously processes the signals from the photomultiplier tubes and from the optional CCD detectors. The big amount of data can be displayed, after the analysis, as a total wavelength scan.

The software is very intuitive and "easy to use". It assists the users in achieving their routine analysis efficiently and quickly. Automatic standardisation, network linking and remote control are some of the most important features. The autodiagnosis program can check continuously the status of the equipment.

#### Which kind of metal alloys can be analyzed?

The spectrometer ATLANTIS can be configured for the analysis of all the most important alloys as:

- Fe base: Cast Iron, Carbon & Low alloy, Stainless steel, Tool Steel, etc.
- Al base: from ultra-pure Aluminium to secondary Al-alloys as Al-Si, Al-Si-Cu, Al-Zn, etc.
- Cu base: Pure copper, Bronze, Brass, Cu-pro-nickel, Nickel-silver, etc.
- Ni base: Inconel, Incoloy, Hastelloy, etc.
- Co base: all different Stellite grades
- Zn base: Pure Zinc and Zamak grades
- Pb base: Pure lead, Battery alloys, etc.
- Mg base: AZ grades, Mg with rare elements
- Ti base: Ti-Al-V, Ti-Mn, etc.



Some of the most important features of the Atlantis Spectrometer :

- Enhanced analytical performances
- Flexibility, stability and reliability
- Accuracy and reproducibility
- High class certified standard calibration
- High Energy Pre Spark (HEPS) source PC controlled
- High constant temperature and pressure optical system
- Shorter analysis time
- High range of metal analysis
- Advanced software technology
- Very intuitive software for unskilled operators
- Advanced service support
- Continuous upgrade possibilities to increase productivity

TOP LABORATORY  
OPTICAL EMISSION  
SPECTROMETER

ATLANTIS

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#### TECHNICAL DATA

##### Optical System:

Paschen Runge mounting  
Spectral field: 120 to 800 nm  
Focal length 750 mm  
Linear dispersion 0.35 nm/mm in first order depending on grating  
High luminosity holographic grating with 1200, 2400, 2700, 3600 grooves/mm depending on the analytical configuration  
Vacuum System (optional):  
the vacuum grade is provided by mean of a two-stage vacuum pump in series with high efficiency low noise turbo molecular pump controller by vacuum control device for better detection in UV elements

##### Source:

Multi-frequency spark source  
Excitation parameters controlled by computer  
HEPS (High Energy Pre Spark) from 200 to 1000 Hz

##### Software:

MLab software, operating in Windows environment is very easy to be used. The operator can really use all the spectrometer's functions  
Some of the most important functions are listed:  
Analysis  
Automatic standardization  
Printing and management of certificates  
Determinations of alloys in accordance to international norms (UNI, ASTM, DIN, ...)  
Network linking and remote control  
Autodiagnosis

**Power supply:** 110/220 V AC 16 A 1 KW

**Dimensions:** L 60 x P 130 x H 120 cm

**Weight:** 250 Kg c.a.



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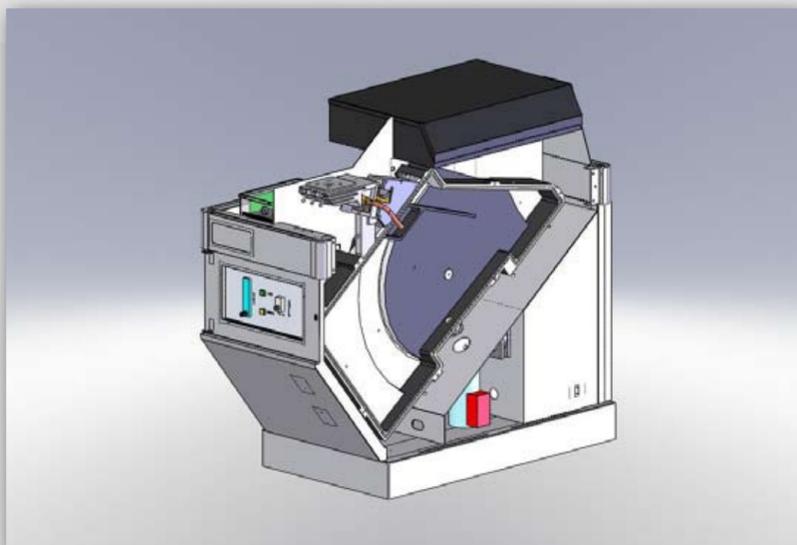


Photomultiplier tubes  
and CCD detectors simultaneously...  
high performance and flexibility

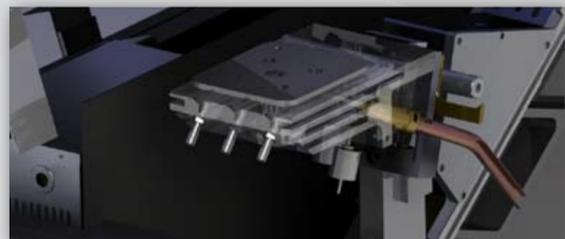
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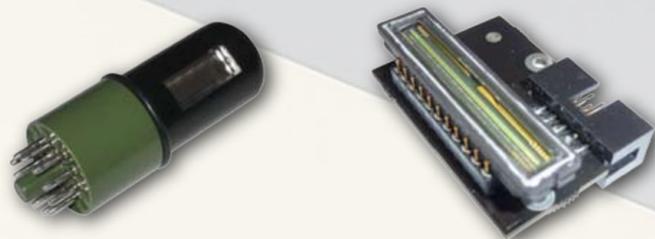
In relation to the process of continuous development, GNR reserves the right to change the specification of the instrument without previous notice at any time.



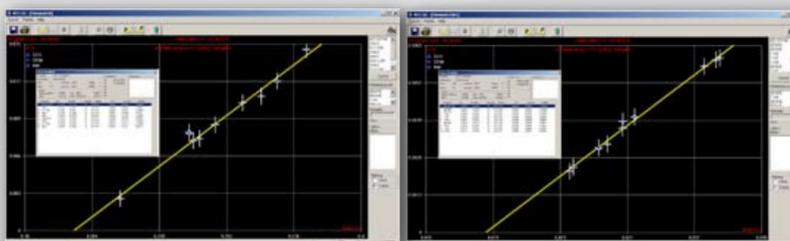
Sketch drawing of the ATLANTIS spectrometer with hybrid optical system



Zoom on the cooling system for the table stand



Photomultiplier technology linked with the new CCD technique grants the possibility to reach the best performances at lower detection limits and at the same time allows the flexibility and upgrading option in order to satisfy present and future needs



Calibration curve for Nitrogen

Calibration curve for Oxygen

**CERTIFICATE OF ANALYSIS**

N°: 1234 Date: 11/09/09  
Ref. Alloy: Operator: Gnr

Customer: Order:

This is to certify that the goods

Goods: Sample: CRM 4092  
Cast: Qr

have this chemical analysis:

| C%    | Si%   | Mn%   | P%    | S%    | Cr%   | Mo%   | Ni%   | As%   |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.201 | 0.233 | 0.552 | 0.057 | 0.020 | 0.114 | 0.102 | 4.152 | 0.158 |

| W%    | N%     | O%    | Co%   | Co%   | Al%   | Ca%   | Nb%   | Pb%   |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|
| 0.001 | 0.0071 | 0.007 | 0.695 | 0.008 | 0.002 | 0.001 | 0.003 | 0.000 |

| Se%   | Sb%   | Ta%   | Ti%   | V%    | W%    | Zr%   | Fe%    |
|-------|-------|-------|-------|-------|-------|-------|--------|
| 0.004 | 0.013 | 0.058 | 0.001 | 0.068 | 0.043 | 0.003 | 93.387 |

Notes:

Q.C. manager:



Search & Match Database: including all the most known International norms as ASTM, UNI, DIN, JIS, etc.

Example of certification provided with Met32 software; it is possible to print attestation of conformity and certification of analysis including chemical composition, mechanical tests and more information on suppliers, lot, grade and norms.

Able to identify and show the difference between the resulting composition and norm's composition and also displaying the nearest alloy's grade  
Open Database with an easy interface to allow the operators to create its own set of alloys and min-max composition.

**SHR Software**

Thanks to the powerful software algorithm is possible to extrapolate historical information of analysed materials.  
This optional software package is of great interest whenever there is the necessity of reproducing specific items using the same material.  
Analyzing the sample item is possible to reconstruct the history of both metal's grade composition and supplier.  
Another useful application of this package is directly correlated to the study of the sample under arguments on non-conformity of the finished product.

The new Atlantis is the result of 25 years of experience in developing and manufacturing optical spark emission spectrometers. It can be considered as the top laboratory metal analyser with improved analytical performances, high flexibility and easy to use.

Manufactured with the higher quality components, Atlantis is developed for any kind of analytical task. It is well suitable for routine analysis in the process control, for monitoring in quality control as well as in research and development for complicate or special analytical needs.

International certified standards are sparked during the factory calibration. The data are evaluated to reach the highest accuracy and analytical quality. For more complicate requirements a group of specialists can help you to develop new analytical methods and to solve your needs.

The Atlantis optical system combines the specific advantages of both photomultiplier tubes and CCD detectors systems.

The high performance Multi-frequency spark source PC controlled allows to know the energy of the plasma with elevated precision. It improve the reproducibility and decrease the measurement time.

ATLANTIS can be designed with optional MDS optic (Multi Detector System), granting at the same time the best accuracy and the wide flexibility of elements' ranges and metal bases. The unit can perform both fast and accurate analysis for the main alloyed elements as well as detect trace's level for elements like Oxygen, Nitrogen, Phosphorous, Boron in steels, in Copper alloys, in Aluminium and Titanium alloys.

The spectrometer can mount a cooled table stand and an ultra-vacuum optic thanks to an additional turbo-molecular pump able to grant the highest sensibility for trace's elements analysis.



Adaptors and reducer rings allows to analyze even small samples and thin wires

**Some of the main advantages are:**

- Fast: you can repeat the analysis in few seconds
- Dynamic Range: from ppm to %
- Versatile: any metal and many shapes can be analysed
- Accurate: better than 1% relative
- Economical: low capital cost investment and operating cost
- Superior performance achievable in analysis of Oxygen and Nitrogen gaseous elements

