



ANALYTICAL INSTRUMENTS GROUP

# Optical Emission Spectrometers



[www.gnr.it](http://www.gnr.it)

# About us

**G.N.R. S.r.l.**, due to its 30 years of experience, is a worldwide market manufacturer of advanced analytical instruments, developing procedures of analysis for various applications, supplying the corresponding laboratory equipment and providing consulting and Customer support worldwide, through its well established sale and post-sale network.

**G.N.R. S.r.l.** projects and manufactures Optical Emission Spectrometers (OES) and Rotating Disc Electrode Optical Emission Spectrometers (RDE-OES) for the measurement of elemental composition of metal alloys and the analysis of contaminants, additives and wear metals in lubricant oils, coolants and hydraulic fluids.

**G.N.R. S.r.l.** designs and produces X-Ray Diffractometers (XRD) and X-Ray Fluorescence Spectrometers (XRF) for the study of material structure and elemental composition for both scientific and industrial applications.



GNR Head Office and Production Site is located in Agrate Conturbia (Novara), near Lago Maggiore; 20 minutes from MALPENSA Airport.

## Certified Company

Highest quality in our products and service is a core value for GNR.

Full commitment is dedicated to support our quality system in the overall process and continuous improvement is fundamental to guarantee GNR compliance to the internationally accepted quality management standard ISO 9001.



G.N.R. periodically organizes at its facility courses and training for technicians and agents as well as seminars and demonstrations.



Thanks to an extensive network of agents GNR provides technical support and sending spare parts worldwide.

In relation to the process of continuous development, GNR reserves the right to change the specification of the instruments without previous notice at any time; the real ones will always be those shown in the final order confirmation.

# S1 MiniLab 150

## ULTRACOMPACT OPTICAL EMISSION SPECTROMETER

A new production model which has already met customer's satisfaction for its excellent performance and competitive price.

**S1 MiniLab 150** is a Multi Matrix spectrometer for Ferrous Alloys, Aluminium alloys and Copper alloys.

Thanks to its innovative optical design, **S1 MiniLab 150** is the only spectrometer of its class to mount up to 4 high resolution CCD with 3.648 elements to ensure the best spectral resolution (< 15 pm).

It is equipped with software "Single Standard Standardization" which allow to standardize the machine with just one single sample for several bases.

### ■ ■ ■ Technical Data

**Optical System:** Multi High Resolution CCD system with up to 4 CCD solid state detectors.

Argon purged optical chamber with Proprietary Low Consumption Argon device.

**Spectral Field:** 178 to 460 nm

**Dimension and weight:** 93x94x101 h cm / 160 Kg



# S3 MiniLab 300

## ULTRACOMPACT OPTICAL EMISSION SPECTROMETER



**S3 MiniLab 300** is the newest Spark Emission Spectrometer designed by GNR to celebrate its 30<sup>th</sup> year of operation.

**S3 Minilab 300** is a Multi Matrix spectrometer for Ferrous Alloys, Aluminium alloys and Copper alloys.

Thanks to its innovative optical design, **S3 Minilab 300** is the only spectrometer of its class to mount up to 7+1 high resolution CCD with 3.648 elements to ensure the best spectral resolution (< 10pm).

It is equipped with software "Single Standard Standardization" which allow to standardize the machine with just one single sample for several bases.

### ■ ■ ■ Technical Data

**Optical System:** Multi High Resolution CCD System with up to 7+ 1 CCD solid state detectors.

Argon purged optical chamber with Proprietary Low Consumption Argon device.

**Spectral Field:** 165 to 460 nm. 400-700 nm extended range with additional CCD.

**Dimension and weight:** 26x73x62h / 80 Kg



# S4 Solaris CCD NF

NON – FERROUS ALLOYS OPTICAL EMISSION SPECTROMETER



**S4 Solaris CCD Non Ferrous (SCNF)** is an optical multi-channel spectrometer. It is the perfect instrument for the routine analysis of non-ferrous metals and alloys.

**S4 SCNF** is a high performance bench-top optical emission spectrometer for process control and the chemical analysis of non-ferrous metals and alloys with an outstanding price - performance ratio.

Thanks to its innovative design, easy of use and performance this model has been highly appreciated by the market.

## Technical Data

**Optical System:** Multi High Resolution CCD system with up to 16 CCD solid state detectors depending on specific application.

**Spectral Field:** 190 to 900 nm

**Dimension and weight without table:**

60x45x50 h cm / 50 Kg

# S5 Solaris CCD Plus

MULTI MATRIX OPTICAL EMISSION SPECTROMETER

With more than 600 units installed all over the world, **S5 Solaris CCD Plus (SCP)** is the most popular model of GNR range of spectrometer.

It is the ideal solution to be used in any working place: office, laboratory, stock, production and the perfect unit to perform multi matrix analysis on both Ferrous and Non Ferrous alloys (Iron, Nickel, Cobalt, Titanium, Aluminium, Copper, Zinc, Lead, Tin, Magnesium).

**S5 SCP** offers the perfect solution for Metal Analysis: reliability and accuracy in results, outstanding analytical performance, ease of use and attractive price.

## Technical Data

**Optical System:** Multi High Resolution CCD System with up to 16 CCD solid state detectors depending on specific application.

Optical vacuum chamber.

**Spectral Field:** 130 to 900 nm.

**Dimension and weight:** 95x49x65 h cm / 100 Kg



# S7 Metal Lab Plus

## LABORATORY OPTICAL EMISSION SPECTROMETER

**S7 Metal Lab Plus** combines ease of use and high accuracy of results. Its ergonomic and innovative design has been appreciated by many Laboratories using this Metal Analyzer for several application across all metal industry.

**S7 Metal Lab Plus** is available with different configurations which allows to perform from daily Quality Control to Trace analysis accordingly to customer's specific needs: a new S7 Metal Lab Plus version with upgraded CCD scientific grade is available from 2015.

As an option, this model can be equipped also with an external mobile arm and pistol for testing directly on material without any preparation.

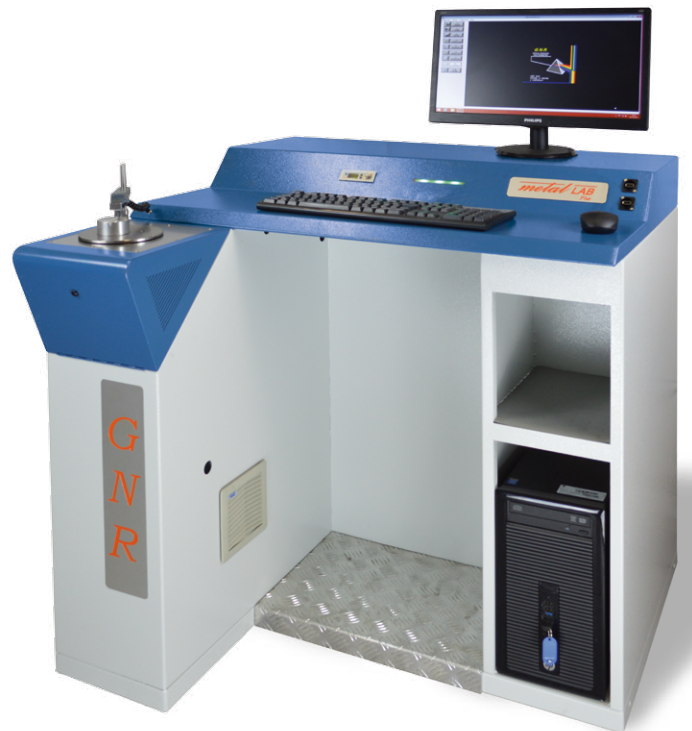
### ■ ■ ■ Technical Data

**Optical System:** Multi High Resolution CCD System with up to 16 CCD solid state detectors depending on specific application.

Optical vacuum chamber.

**Spectral Field:** 130 to 900 nm.

**Dimension and weight:** 93x94x101 h cm / 160 Kg



# S9 Atlantis

## PMT AND CCD LABORATORY OPTICAL EMISSION SPECTROMETER



**S9 Atlantis** is GNR Top Range laboratory optical Emission spectrometer.

**S9 Atlantis** optical system combines the advantage of both photomultiplier tubes and CCD Detector Systems. The spectrometer can mount a cooled table stand and an ultra vacuum optic by an additional turbo-molecular pump able to grant the highest sensibility for trace elements analysis such as Nitrogen, Oxygen, Phosphorous and Boron in Steels, Copper, Aluminium and Titanium Alloys. **S9 Atlantis** can be designed with optional MDS optic (Multi Detector System), granting at the same time the best accuracy and the flexibility of elements to be analyzed.

### ■ ■ ■ Technical Data

**Optical System:** Paschen Runge mounting

**Spectral Field:** 120 to 800 nm

**Dimensions and weight:** 60x130x120 h cm / 250 Kg

# E3 Esaport

PORTABLE OPTICAL EMISSION SPECTROMETER



**E3 Esaport** portable optical emission spectrometer for on-site analysis, equipped with arc and/or spark excitation source is the suitable instrument for several application fields: metal sorting, Positive Material Identification (PMI), incoming control .

E3 Esaport is small sized and can be easily carried and moved anywhere, from production department to warehouse thanks also to an additional handy trolley (supplied as option).

## Technical Data

**Optical System:** Multi CCD Detectors, wide spectral field, optical chamber sealed against light and dust, thermal insulation. Shock resistant.

**Spectral Field:** 170 to 460 nm

**Probe:** Lightweight and ergonomic design. Start/Reset button. Tungsten electrode for Spark mode and copper electrode for arc mode. 3.0 mt standard version optical fiber with protective sheath.

**Dimension and weight:** 60x51x29 h cm / 23 Kg w/o trolley

# R3 RotrOil

ROTATING DISC ELECTRODE ATOMIC EMISSION SPECTROMETER

**R3 RotrOil** spectrometer instrument is a compact, transportable and easy to use optical emission spectrometer designed specifically to determine trace concentration in wear metals, polluting materials and additives in lubricating oils, transmission and refrigerating liquids.

**R3 RotrOil** is compliant to the requirements of the ASTM D6595-00 Standard Test Method for determination of Wear Metals and Contaminants in used lubricating oils or used hydraulic fluids by Rotating Disc Electrode Atomic Emission spectrometry.

Thanks to the new compact design it's a very strong and reliable unit, able to be moved and transported to different locations where the analysis must be performed.

## Technical Data

**Optical System:** Paschen Runge mounting

**Spectral Field:** 190 to 800 nm

**Dimensions and weight:** 52.5x50x73 h cm / 55 Kg





# Sample Preparation Machines

## ■ ■ ■ Electrogrinding machine DS 1100

New belt grinding machine for fast preparation of sample surface equipped with:

- No. 1 grinding belt cm 100 x 10
- No. 1 motor 2800 rpm

Dimensions and weight: 60x40x30 h cm / 38 Kg



## ■ ■ ■ Electrogrinding machine DS 300/2

Grinding machine for spectrometric samples preparation equipped with:

- No. 2 separate discs diam 300 mm suitable to prevent pollution in case of cleaning surfaces of different alloys;
- No. 2 self braking motors (1500 rpm) operating separately;
- Vacuum cleaner

Dimensions and weight: 42x76x92 h cm / 110 Kg



## ■ ■ ■ Lapping Machine LP 3000

Polishing machine for preparation of ferrous and non ferrous spectrometric samples.

It is supplied with proper lapping tool accordingly to the alloy of the sample to be prepared (Aluminium, Copper, Cast iron).

LP3000 basic configuration includes:

- No. 1 Self braking mono-phase motor 1500 rpm
- No. 1 Sample holder

The LP3000 can mount :

- Cutting tool system for Non-ferrous samples
- Grinding stone for Cast Iron samples

Furthermore is possible to use the LP3000 together with a complete table stand with a dust exhauster.

Dimension and weight: 41x76x93 h cm / 90 Kg



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Local Agent

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