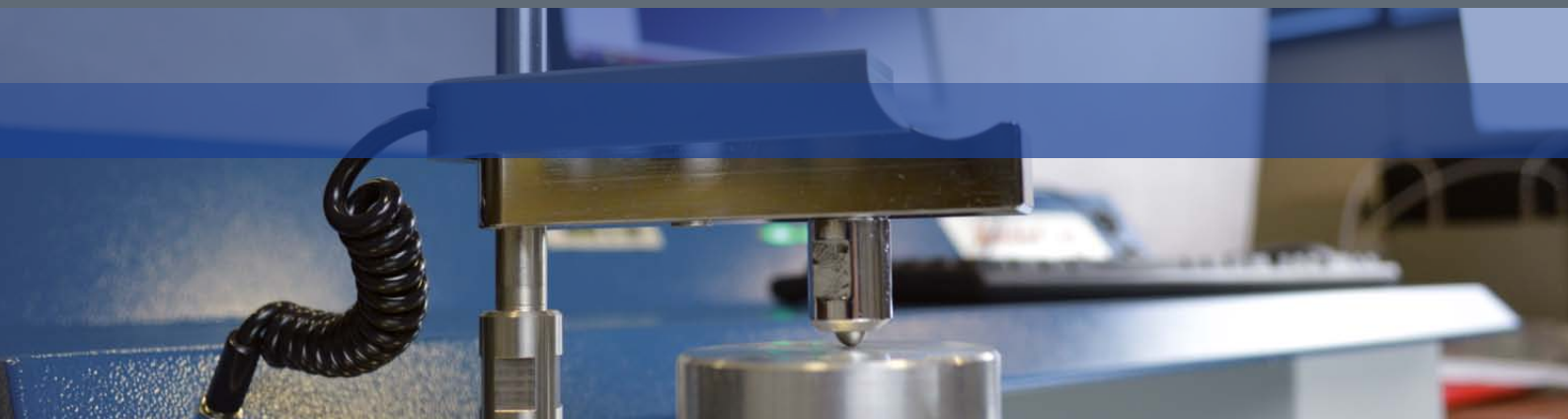




ANALYTICAL INSTRUMENTS GROUP

Optical Emission Spectrometers



OES

www.gnr.it

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 (Iron, Copper, Aluminium, Nickel, Zinc, Tin).

Thanks to its innovative optical design, **S1 MiniLab 150** is one of the smallest and lightest ultra-compact spark emission spectrometer for metal analysis.

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

■ ■ ■ Technical Data

Optical System: Multi High Resolution CCD System.
Argon purged optical chamber with Proprietary Low Consumption Argon device.

Spectral Field: 170 to 460 nm

Dimension and weight: 50x59x31 h cm / 35 Kg



S3 MiniLab 300

ULTRACOMPACT OPTICAL EMISSION SPECTROMETER

S3 MiniLab 300 offers an outstanding solution for metal analysis: optimal analytical performance, user friendly and cost effective operation.

In 2017, our engineers have designed the 2nd generation model which make the **S3 MiniLab 300** system fully suitable not only for your dedicated applications, but also for many general purpose applications.

The result is a completely new CCD based instrument with the possibility to analyze the following matrices (Iron, Copper, Aluminium, Nickel, Zinc, Tin, Titanium, Cobalt, Lead, Magnesium) with superior analytical performances.

■ ■ ■ Technical Data

Optical System: Multi High Resolution CCD System.
Argon purged optical chamber with Proprietary Low Consumption Argon device.

Spectral Field: 130 to 700 nm.

Dimension and weight: 53x83x46 h cm / 70 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.

Optical vacuum chamber.

Spectral Field: 130 to 900 nm.

Dimension and weight: 90x36x62 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 applications across all metal industry.

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

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.

Optical vacuum chamber.

Spectral Field: 130 to 900 nm.

Dimension and weight: 93x94x101 h cm / 160 Kg





ANALYTICAL INSTRUMENTS GROUP

X-Ray Diffraction



www.gnr.it

StressX

ROBOTIC RESIDUAL STRESS X-RAY DIFFRACTOMETER

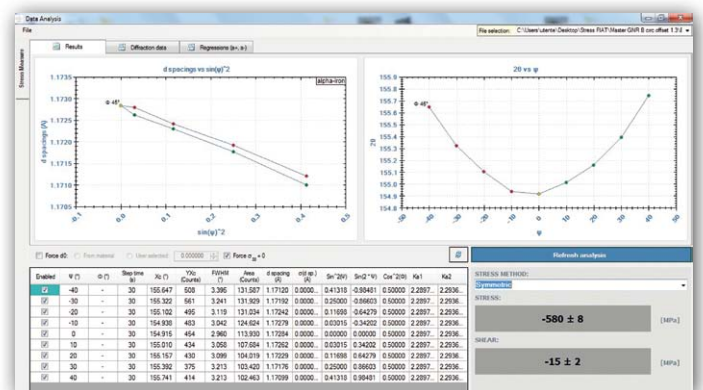
GNR StressX is an X-Ray diffractometer dedicated to the Residual Stress analysis, providing a non-destructive test of the sample. The head of the diffractometer is mounted on an anthropomorphic 6 axis robot that allows to analyse samples of any dimensions and shapes.

GNR StressX can be mounted either in a closed cabin, suitable for laboratory analysis, or on a four-wheel trolley for on-site analysis.

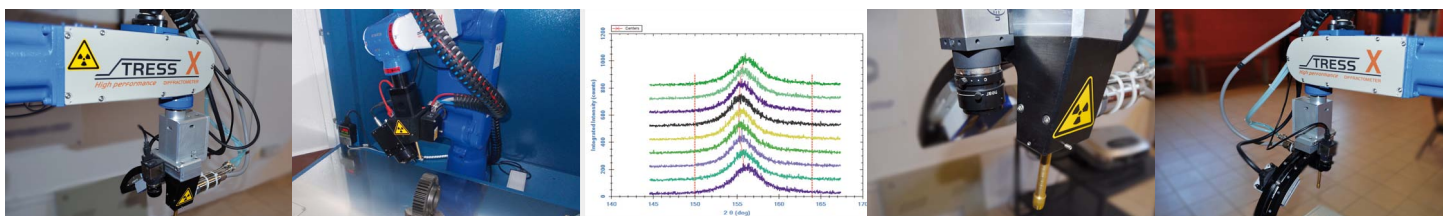
Residual Stress can be induced by machining, grinding, rolling, deep drawing, welding, thermal hardening and shot peening: its quantification allows to prevent fatigue damage and to control material's durability and safety.

Application fields:

- Automotive
- Naval
- Railways
- Aerospace
- Oil and Gas
- Power and Nuclear
- Bearing and Gear Industries



Stress Analysis panel: diffraction data tab

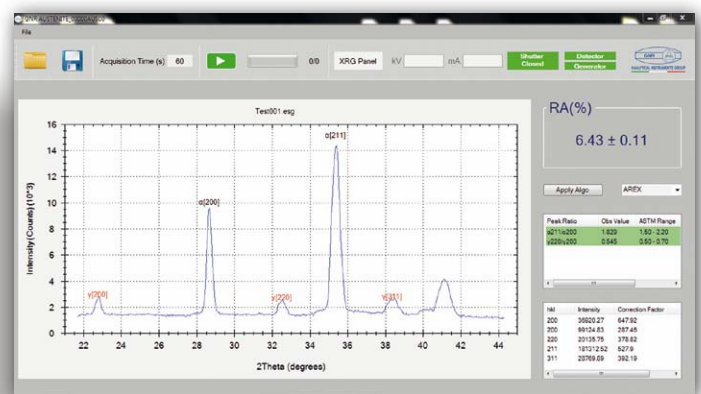


GNR AreX is a fixed angular range X-Ray diffractometer equipped with the most modern technical features which grant accuracy, precision, safety and easiness of use, especially designed for quantitative determination of Retained Austenite.

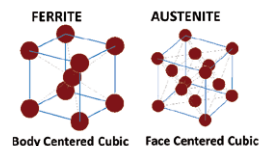
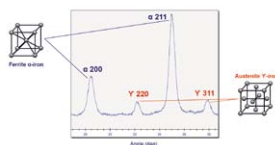
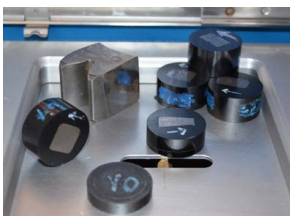
GNR AreX has been designed to be in compliance with ASTM E 975-03 “Standard Practice for X-Ray Determination of Retained Austenite in Steel with Near Random Crystallographic Orientation”.

Accurate measurement of Retained Austenite level is important in development and control of heat treatment processes in steel industry.

Thanks to **GNR AreX** innovative concept, Retained Austenite volume percentage can be measured in few minutes, just placing the sample and pressing start button. **GNR AreX** is the easiest to use X-Ray diffractometer for Retained Austenite quantification present on the market.



Austenite, acquisition and analysis software, GNR



EXPLORER

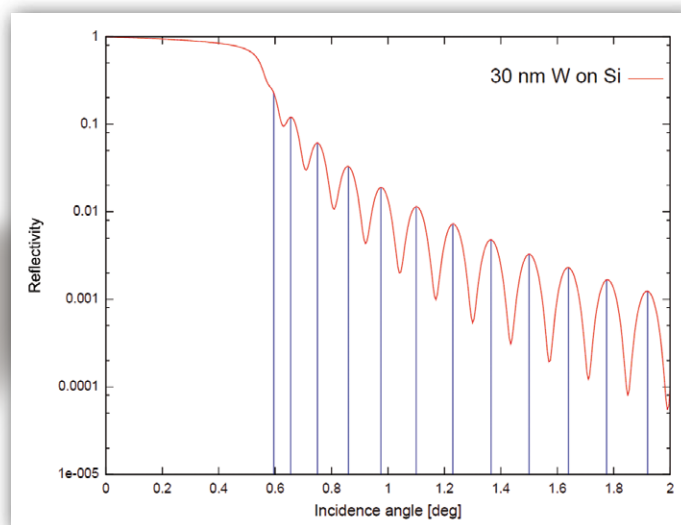
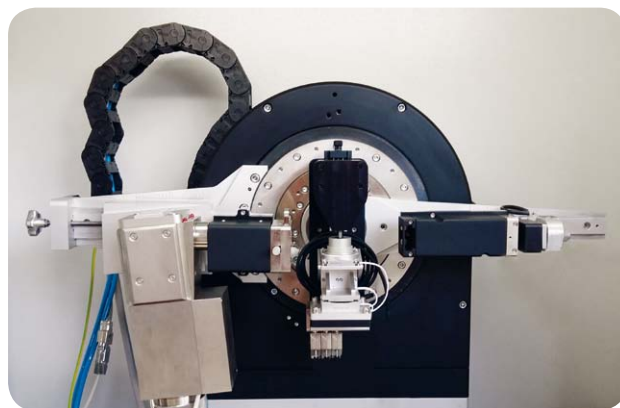
MULTIPURPOSE X-RAY DIFFRACTOMETER

Explorer is a multi purpose - Theta/Theta - high resolution diffractometer which, thanks to its direct drive torque motors, offers top performances in many analytical areas, ranging from phase analysis to determination of microstructural properties on bulk or thin film materials.

Thanks to its modularity and the wide range of accessories and attachments available, **Explorer** allows to perform measurements in different configurations: traditional X-Ray Powder Diffraction (XRPD), Reflectometry (XRR), Grazing Incidence Diffraction (GID), High Resolution X-Ray Diffraction (HRXRD), Total Reflection X-Ray Fluorescence (TXRF), Residual Stress and Texture X-Ray Diffraction.

Explorer offers solutions for an extended range of analytical requirements:

- Routine crystalline phase identification and quantification
- Crystallite size - lattice strain and crystallinity calculation
- Polymorph screening and crystal structure analysis
- Residual Stress and Retained Austenite quantification
- Thin films, depth profiling and non ambient analysis
- Phase transition monitoring, texture and preferred orientations



Reflectivity from 30 nm Tungsten (W) thin film on Silicon (Si) substrate measured with Cu K-alpha wavelength

