

Testing advantage

- Fast nondestructive testing. Fast alloy analysis in 1-2 seconds. Testing for 10 seconds achieves a similar precision to the lab.
- Professional alloy analysis software with hundreds of built-in alloys. Intuitive user interface.
- Many alloy modes including "quantitative analysis (in ppm)" and "qualitative mode". In-built multi-calibration methods to calibrate and accommodate deviation caused by different geometries.
- Unique adjustable basic parameterised technology. Customers can easily create more precise alloy analysis modes by themselves.
- Has dynamic matching information function. Test results, sample number and matching information are displayed simultaneously.

Technology specification

Model	The 4 th generation EDX analyzer-Genius XRF series
Measurable range	Mg to U
Processor and RAM	CPU: 667MHz RAM:256M Maximum expanded storage: 32G Standard configuration: 2G , for storage of large amounts of data.
Content range	ppm~99.99%
Testing time	3-30 seconds
GPS、WIFI	Built-in system of GPS & WIFI
Battery time	Re-chargeable lithium battery, with capacity of 7800mAH, continuously providing 8 working hours ; Equipped with wide voltage (110V-220V) general adapter
Testing object	Solid, liquid , powder
Detector	25mm <sup>2</sup> 0.3mil,SDD detector
Detector resolution	Minimum resolution:139eV
Excitation source	Target: Ag High voltage: 5-40kv Tube current: 1-100 uA
Collimator and filter	Collimator kinds: 2 (4.0 mm and 2.0mm diameter) Filter types: 6 Automatic switch: YES
Video system	HD CMOS camera
Screen	TFT-LCD touch screen resolution 640*480
Detection limit	Detection limit: ppm level
Safety	Self-contained password manager mode
Gas charging system	Optional: Helium charging at ordinary pressure
Operational environment	Humidity ≤90% Temperature -20℃ ~+50℃
Size	234×306×82mm (L×H×W)
Weight	Net weight:1.6kg Battery weight: 0.3kg

Rapid | Accurate | Non-destructive

# Genius 5000 XRF

Handheld Alloy & Stainless Steel Analyzer



**Super** small,light,beautiful, safe, convenient,long standby time, waterproof, precise and fast

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The ISO 9001:2008 international quality certification system is adopted by our company



## Genius 5000 XRF

Handheld Alloy & Stainless Steel Analyzer

The Genius 5000 XRF is designed to meet the most demanding needs of on-site X-ray analysis in the field. The Genius is small, light and well balanced with a newly designed easier to use user interface featuring more powerful hardware enabling faster testing with increased accuracy and precision than ever before and with quicker and easier access to results. The new hardware configuration including the digital multi-channel technology significantly improve the detection limit, stability and increase its field application.

### Performance Advantage

#### 01 Perfect performance as desktop

The three main core technologies, low power integrated miniature X-ray tube, large area beryllium window electric cooling SDD detector (the best in the world) and the miniature digital signal multi-channel processor significantly reduce testing time and deviation and increase the detection precision to a level of performance similar to the desktop.

#### 02 Small, light and easy to use

Small, light, easy to carry ... perfect for field work. Can carry out on-site and in-situ analysis anytime and anywhere.

#### 03 Non-destructive detection

No marking or destruction of samples

#### 04 Fast detection

Within a few seconds the Genius can test a sample and for example identify the grade of an alloy. However, testing for 10 seconds is enough to produce a result of similar in precision to a lab.

#### 05 Light element detection

The Genius can ordinarily detect the light elements starting from Mg without the use of a gas purge. However, the Genius also incorporates a helium gas purge system to further improve detection should it be required.

#### 06 HD camera for more accurate testing

Built-in HD camera as standard enabling easier sample alignment to the exact test point for increased precision.

#### 07 Direct testing

The Genius can test objects directly with no need for sample preparation. Various kinds of samples can be tested including electronic products, alloys, geological and mining, soil, rock, residues, small solid particles, liquid sediments and so on.

#### 08 Easy deviation calibration

Testing couldn't be more simple. With multiple testing modes, free adding of modes and the Automatic Matching Test function, tests can be carried out at the one click of a button or pull of the trigger. Also, built-in intensity calibration methods calibrate and take into account the deviation caused by different sample geometry and inhomogeneous structure density.

#### 09 Professional, easy to use software

Brand new software interface and core designed for easier quicker operation and access to results, The combination of both FP and EC software means it is more stable and has wider applications fields than ever before.

#### 10 Improved efficiency

Employing a combination of automatically selectable collimators with filters, the Genius has a wider range of collimator-filter combinations increasing its performance and widening its capability.

#### 11 Faster data transmission

Incorporating a new Embedded Windows CE system, HD touch screen (res. 640x480), digital multi-channel technology and SPI data transmission, the data transmission and processing ability is significantly improved mastering testing data in every environment.

#### 12 Radiation protection, care for health

Triple safety protection function and an automatic sensor automatically switch off X-ray production within 1-2 seconds when no sample is present, preventing accidental exposure. With no X-ray leakage when operating the radiation level is far lower than the international safety standard (can be combined with a desktop test stand with closable lid).

#### 13 Last lasting power

Lithium ion batteries with maximum capacity of 7800 mAH can continuously operate for 8 hours, 2 times longer than previous generations. Equipped with a wide voltage ac and 12 V adapter and charger to ensure you can test anywhere anytime.

#### 14 Warning Indicators

Equipped with a light warning system, a green LED lights to indicate the power is on and a flashing red LED when testing to prevent mistaken operation and accidental exposure to X-rays.

#### 15 Durable design

The instrument is designed to be waterproof and dust-proof and continuously operate under high temperature and humidity. The carry case is manufactured of high strength military grade material which are moisture-proof, shockproof and pressure resistant.



### Application Field

The Genius 5000 XRF with its high performance configuration and newly designed software analysis interface is 2-3 times more precise than common alloy analysers and can be used for testing many kinds of alloys including: high and low alloy steel, stainless steel, tool steel, chromium/molybdenum steel, nickel alloy, cobalt alloy, nickel/cobalt heat resistant alloy, titanium alloy, copper alloy, bronze, zinc alloy, tungsten alloy and so on. Through the determination of other alloy elements it can also determine the light elements such Al, Mg and can be used for reliable identification and confirmation of material. It can be used to verify incoming material in iron, and steel smelting, boiler and other high-temperature and high-pressure industries to ensure the quality of raw materials. It also can be used for alloy content analysis in shipbuilding, aerospace and other high-tech industries to ensure quality and safety of the product. It can be applied in power plant and other national economy industries for component determination and safety of devices.

The Genius is a very powerful tool and has contributed greatly to the development of scrap metal recycling industries. It can quickly analyse and identify a large range of scrap and waste materials/metals within a few seconds offering the necessary information for both sides in purchasing and selling of such materials.

### Application Case

#### 1. Reliability Analysis

Simply pull the trigger and within seconds you will know the material content. With 10 seconds of testing you can check and verify the quality of the material preventing any costly mistakes through the use of wrong material grade.

#### 2. Quality Control

During the process of alloy material production and machinery equipment manufacture, material identification is invaluable. To prevent costly mistakes in the use and mixing of raw materials, the Genius 5000 provides a professional non-destructive method that is accurate, precise and very quick.

#### 3. Recovery of scrap metal

The new generation Genius 5000 provides the immediate non-destructive analysis from titanium to nickel alloys

### Core Application Field:

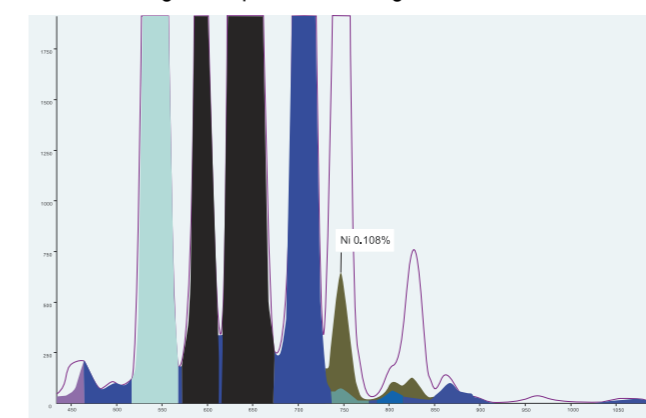
Iron and steel Recovery of scrap metal Machinery manufacture and process Boiler pressure vessel

### Analytical precision

Measurement precision of the main elements in 304 stainless steel tested for just 10 seconds.

	Cr	Mn	Ni	Cu	Mo
Average value	18.232	0.926	8.072	1.236	0.288
Standard deviation	0.072	0.055	0.086	0.043	0.008
Relative standard deviation (%)	0.395	5.936	1.067	3.506	2.693

Zoomed in region of spectrum showing Ni content as 0.108% in Stainless Steel



Spectrum of 316 Stainless Steel

