

TrueX Hand-held Alloy Analyzer



➤ Company Profile

Our factory is a provincially recognized high-tech enterprise which manufactures, produces and sells portable X-ray Fluorescence Spectrometer across the world. The employs a professional X-ray fluorescence team to design, develop, manufacture, sell and service X-ray fluorescence spectrometers, contributing to a rising sci-tech entity with great technical strength, up-to-date technology, innovative service concepts and advanced management philosophy. Our's major product, i.e., X-ray fluorescence spectrometer, is applicable to any fields that elements or compounds from Na to U are to be analyzed. It is suitable for analysis in building materials (cement, glass, ceramics) , metallurgy(steel, and non-ferrous metals), petroleum (trace elements such as S, Pb, etc.), chemistry, environmental protection, food safety, geological mining, to commodity inspection, quality inspection and trace elements analysis of human body.

We has developed a business value that meeting customers' needs and providing them with advanced and cost-effective solutions is their first priority. As we are expanding the market horizon across the globe, we believe the portable spectrometers will meet more customers' needs in even broader areas in the future.

➤ Clients

Name of clients	Name of clients
Daqing Oilfield Company, CNPC	Jangsu Provincial Special Equipment Safety Inspection Institute Yangzhou Branch
Hunan Hengyang Steel Pipe(Group) Corporation	University of Science and Technology Beijing

Connell Chemical Industry LLC	China National Offshore Oil Corporation
Guangzhou University	JIUQUAN IRON@STEEL GROUP
FUSHAN GROUP	Ningxia JinYuyuan Chemical Group Co.,Ltd

➤ Performance Features

1. Small, light and easy to carry.
2. High-speed processing chip, advanced algorithm and high-responsive software, resulting in even faster analysis.
3. High-performance X-ray Tube, Ultra-high Resolution Detector combined with Digital Multi-channel Processing Technology, yielding super-high detection resolution.
4. Industrial resistive touch screen, superior to capacitor screen in back-light and clearer against sunlight in the field. At the same time, people don't need to take off gloves when they are operating machine in some particular environment.
5. Intelligent battery management exerts a real-time monitoring of the residual capacity of battery and backup battery through MSBUS bus.
6. Automatic switch to standby mode when not used and recovery after the machine is picked up, which saves power and extends working time; TrueX will also give out alarm when ambient temperature or humidity exceeds the scope of application.
7. On TrueX, users can customize the reports by adding their company logos, addresses, test results, spectrum and others (such as product description, origin of products and batch number).
8. TrueX is built with double beam technology which can automatically sense whether there is a sample at the measurement window. This is also a safety and protection feature. The brightness of the display of TrueX is automatically regulated according to environment brightness.
9. TrueX can be configured and maintained in a remote way via Internet.
10. TrueX's new algorithm optimizes the spectral resolution, so lower detection limits can be achieved, which are comparable with even large-scale lab instruments.
11. TrueX Ultra-short opticalTM path design can significantly improve light element excitation effects, without the fall/fill condition.
12. TrueX has a built-in environmental sensing system covering conditions such as temperature, dust humidity and others.

➤ **Application Features**

1. Excellent Performance

TrueX shows element symbols in both English and Chinese. With high precision, high testing speed and comparable results to even that of laboratory equipment, TrueX displays alloy grade and elements percentage content (up to three decimals) and ppm content in an apparent way.

2. One-touch operation

TrueX test lasts only a few seconds and identification of alloy grades takes only 1 or 2 seconds. This facilitates operation by non-technical users.

3. Nondestructive testing (NDT)

TrueX test does not damage or have any adverse effect on the use of samples. No damage is foreseen in the entire test process.

4. Analysis software

Our analysis software is a professional analysis software which enables the users to easily configure passwords, customize analysis reports attached with company LOGO and implement remote control of machine; users can edit alloy grade library, add their own grade number or define their own company's alloy brands; the software also allows automatic calibration of instrument and diagnosis of problems in a remote way; the software can be updated via Internet.

5. Scrap metal recycling and sorting

Scrap metal recycling, reuse, and on-site analysis and sorting. TrueX offers a rapid and reliable identification of the scrap metals when scrap metals are transacted between buyers and sellers. TrueX delivers quantitative element analysis of iron alloy, copper alloy, aluminum alloy, copper-iron alloy, lead-tin alloy, mixed alloys, etc, and rapid identification and sorting of these alloys on the site.

6. Application fields, safety and standards

TrueX is suitable for alloy material identification (PMI) for incoming inspection; material inventory management; re-inspection of construction materials in petrochemical construction, metal smelting, pressure vessel, power plant, petrochemical industry, fine chemical, pharmaceutical, aerospace and other industries to avoid serious safety accidents resulting from mixed or unqualified materials. TrueX is in compliance with ASTM standard, China National Standard (GB), UNS, electric industry standard (DL), API, JIS, GMP, TSG, Mechanical Industry standard (JB), etc.

7. Quality Control, Quality Assurance (QC/QA) and Error-proofing (PKKA - YOKE)

In metal processing and manufacturing industry, quality control and quality assurance (QC/QA) and error

proofing (PKKA - YOKE) of materials (raw materials), semi-finished products and finished products is indispensable. Use of mixed or unqualified materials will bring losses to the company. This is true to companies ranging from small metal processing plants to large aircraft manufacturers.

8. Data Processing and Enterprise Resource Planning (ERP)

Data can be transferred via USB, WIFI and Bluetooth and stored in excel, pdf or other formats. Users can customize the reports by adding their company logos, addresses, test results, spectrum and others (such as product description, origin of goods and batch number); i-cloud data storage service is optional. Data can transport to Enterprise Resource Planning (ERP) system.

➤ Application fields

- Nondestructive, rapid and accurate analysis of alloy elements and alloy grade identification on the site
- Metal identification /scrap metal sorting
- QA/QC management in metal production, processing, casting, etc
- Medicine and biological medicine
- Identification of positive materials, oil refining and petrochemical industry
- Thermal power plant, hydroelectric power station, nuclear power plant
- Accurate element analysis of raw material and PMI identification so as to meet production needs and ensure security of equipment and materials used in the process.

➤ Elements to be Analyzed and Test Modes

Test modes of TrueX and elements covered	
Model	Scope of elements in standard test mode can be extended if there is such a need.
TrueX 800	can analyze Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Se, Zr, Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, W, Re, Pb, and Bi, totaling 25 elements.
TrueX 860	can analyze Mg, Al, Si, P, S, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Se, Zr, Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, W, Re, Pb, and Bi, totaling 30 elements.

➤ Alloy family

- Iron-based alloy series (stainless steel, chromium/molybdenum alloy steel, low alloy steel, tool steel,

seamless steel)

- Nickel-based alloy series (nickel alloy, nickel/cobalt alloy)
- Cobalt-based alloy series
- Titanium-based alloy series
- Copper-based alloy Series (bronze, brass, copper and nickel alloy, etc.)
- High temperature alloys (molybdenum tungsten alloy)
- Aluminum-based alloy
- Other alloys

Super-FP algorithm is capable of detecting accurate metal element content and identify material without switching mode !

TrueX hand-held alloy analyzer (XRF) is a powerful weapon in material identification (PMI) in production of high temperature and high pressure boiler, container, pipe, etc; metal identification in iron and steel metallurgy, nonferrous metals, aerospace, weapons, submarine vessels, etc; metal material identification in engineering installation and construction projects in areas of the petrochemical refining, fine chemical, pharmaceutical, power plant, aerospace, etc to ensure equipment and material acceptance meet the project specified requirements; scrap metal recycling industry.

TrueX is applicable to quality control, material classification, alloy identification, accident investigation, etc, which tackles the fundamental difficult problem of raw material analysis. As an innovation of many modern technologies, it is a great helping hand in these applications. Users can personalize the analyzing system according to their own needs.

TrueX's built-in alloy library contains 380 kinds of alloys, as well as other special alloys for mold, electric power, petrochemical and other industries, which simplifies the conversion of alloys from one country to another. Besides, it has two built-in libraries that the users can define by themselves to extend alloy brands. Therefore, it can extend to as many as 600 alloy brands and test more than 1,000 kinds of alloy materials.

➤ Technical parameters and specifications

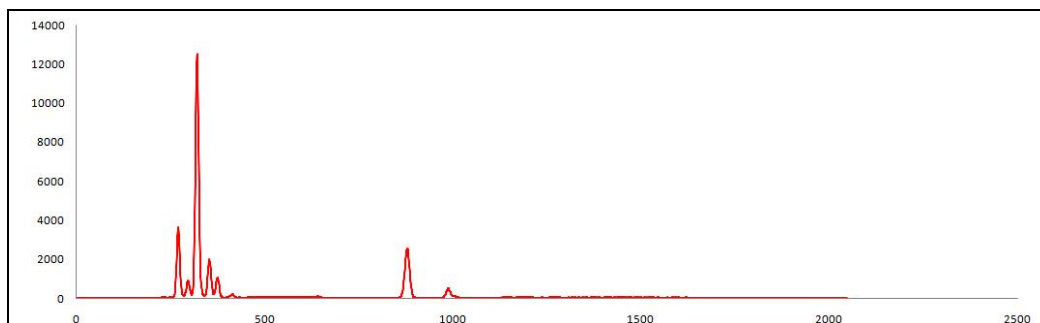
Weight	1.6Kg (with battery) .
Dimensions	254 x 79 x280 mm (L xW xH) .
Excitation source	50KV/200 μ A maximum pipe pressure pipe flow can be adjusted freely, Agtarget (standard), Au, W, Rh target(optional).
Detector	BOOST Si-PIN detector for TrueX 800. SDD detector for TrueX 860.
Range of detection	All elements between Mg and U.
Display system	Industrial resistive touch screen with screen size of 4.3". Proprietary operating system software and sound waves. Multiple languages including English and Chinese. And it automatically adjusts display brightness according to the environment brightness.
Data processing	32GB memory USB, bluetooth, WIFI, or liked to the Internet; instrument can be configured and repaired remotely. Data can be exported via EXCEL or PDF. Users can customize the reports by adding their company logos, addresses, test results, spectrum and others (such as product description, origin and batch number).
Heat dissipation	Equipped with a dedicated T-shaped radiator to dissipate the heat; no need to wait for cooling of detector time again.
Safety	Built-in double beam technology can automatically sense whether there is a sample at the measurement window. This is also a safety and protection feature. Waterproof, dust-proof and shockproof suitcase LANScientific Safety Band;
Power supply system	Intelligent battery management through MSBUS bus, real-time monitoring of the residual capacity of battery and backup battery. The battery complies with air transport regulations of dangerous goods. A single battery can last 8 hours.

➤ 316SS stainless steel standard sample block 30 seconds of the main elements of the test accuracy

Reading	Mode	V%	Cr%	Mn%	Fe%	Ni%	Cu%	Mo%
No1	ALLOYS	0.13	16.56	1.22	69.558	10.18	0.322	2.03
No2	ALLOYS	0.132	16.66	1.29	69.438	10.15	0.32	2.01
No3	ALLOYS	0.13	16.61	1.2	69.645	10.05	0.315	2.05
No4	ALLOYS	0.128	16.62	1.19	69.701	10.03	0.331	2

No5	ALLOYS	0.126	16.68	1.18	69.489	10.15	0.325	2.05
No6	ALLOYS	0.132	16.67	1.22	69.57	10.1	0.318	1.99
No7	ALLOYS	0.134	16.62	1.25	69.474	10.16	0.322	2.04
No8	ALLOYS	0.14	16.5	1.16	69.655	10.2	0.315	2.03
No9	ALLOYS	0.132	16.7	1.19	69.472	10.17	0.326	2.01
No10	ALLOYS	0.128	16.63	1.2	69.611	10.08	0.321	2.03
average value		0.131	16.625	1.210	69.561	10.127	0.322	2.024
standard value		0.128	16.68	1.22	69.5	10.11	0.32	2.03
standard deviation		0.004	0.057	0.035	0.086	0.055	0.005	0.020
RSD/%		2.83	0.34	2.93	0.12	0.54	1.47	0.97

➤ 316SS test spectrum



➤ Test interface

Alloys #110 30SEC			
316SS		0.019 Exact	
Elem	%	+/-	SPEC
V	0.126	0.001	
Cr	16.68	0.102	[16.0-19.0]
Fe	69.49	0.202	[63.0-72.0]
Mn	1.18	0.081	[0.0-2.21]
Cu	0.325	0.002	[0.0-1.0]
Ni	10.15	0.121	[10.0-14.0]
Mo	2.05	0.075	[1.9-2.8]



➤ XRF-TrueX radiation safety

Radiation Safety Guarantee

Low power (4W) X-ray tube, mini collimator reduce radiation quantity effectively;

X-ray tube radiation protection shield avoids X-ray escape;

The structure producing radiation is all in equipment interior, you don't need to align or calibrate X ray, then ensure not detect any measurable radiation in equipment operation process;

X ray indicator light alarms user the radiation produciton;

Independent safe circuit and DoubleBeam interlock tool can protect user safety effectively;

Conform to dosage limit requirement in <Radiation protection standards for X-ray diffraction and fluorescence analysis equipment> (GBZ115-2002);

Conform to valid annual dosage limit requirement for workers and public in<Ionizing Radiation Protection and Safety of Radiation Sources basic standards> (GB18871-2002);

Monitoring results:

Point No.	Point Discription	Testing Results (μSv/h)						Device State
		1	2	3	4	5	Average	
1	5cm above the surface of the device	0.10	0.11	0.12	0.10	0.09	0.10	Turn On
2	5cm the surface left of the device	0.10	0.12	0.10	0.11	0.12	0.11	Turn On
3	5cm the surface right of the device	0.10	0.12	0.10	0.11	0.13	0.11	Turn On
4	5cm below the surface of the device	0.12	0.10	0.10	0.11	0.12	0.11	Turn On

	(holding place)							
5	5cm back the surface of the device	0.09	0.08	0.10	0.12	0.08	0.09	Turn On
6	Operation place	0.10	0.09	0.11	0.08	0.09	0.09	Turn On
7	Public Distance Zone	0.09	0.05	0.07	0.08	0.06	0.07	Turn Off

Note: the testing result doesn't deduct radiation background value.

➤ After service

1. Quality warranty:

Our commits that TrueX handheld spectrometer is fabricated with fine grade materials and top notch workmanship. It is brand new, never used, and in full compliance with the quality provision of this Contract. TrueX warranty is 12 months starting from the date of final acceptance of the goods/commissioning of machine.

2. Technical training:

Operating Manual of TrueX Handheld Spectrometers

Maintenance Manual of TrueX Handheld Spectrometers

3. After-sale service

Over the years, LANScientific has sold XRF instruments to many global users. In order to provide better technical support and service, it shall be committed to.

1. services including

- We shall provide after-sales service to all products it has sold worldwide.
- We shall provide a one-year warranty for the spectrometer it has sold worldwide.
- We shall provide one-year warranty for X-ray Tube (X-ray tube) and Detector (Detector).
- We shall provide one-year renewal warranty for the replaced components in case there is any replacement of them during repair of machine.

2. The following physical damage is not covered by warranty.

- instrument is impacted by great force that the internal impact sensor changes from white to red;
- Detector is broken
- PDA is broken;
- Instrument body is broken;
- Loss of accessories
- Loss of components
- Water coming into instrument

3. In case the instrument is not able to operate, the customer can call after-sales service for help; we offer 3 types of repairs:

- Internet repair: if the customers are in foreign countries or remote areas, we can offer them first the INTERNET repair service.
- Phone repair: customers called over the phone to explain explicitly the problem and our technical staff will instruct them to solve the problem.
- On-site repair: in case the phone repair fails, our technical personnel will go to the site to repair the instrument within 72 hours after the problem is reported;

4. Out-of-warranty service: upon expiry of the warranty period, all customers are still entitled to out-of-warranty service during the working life of the instrument.
5. Privilege in out-of-warranty service: customers shall have the privilege to get a preferential prices on the components when they maintain their instrument during the out-of-warranty period as long as they maintained it beforehand.

