LANScientific

XUANCAI

Floor-Standing X-ray Diffractometer

FOR THE PACKET LAB
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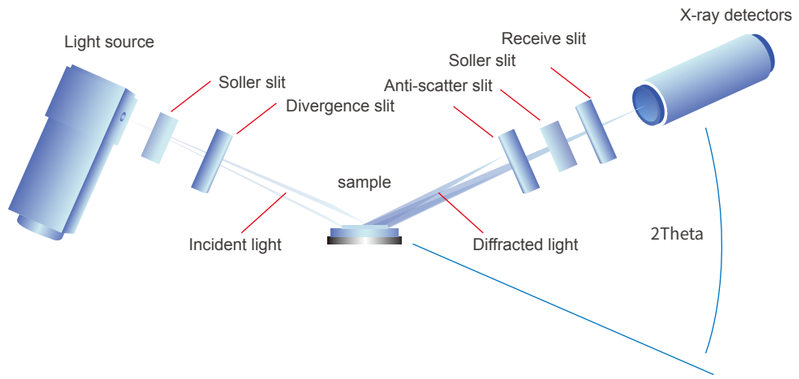
Product Description

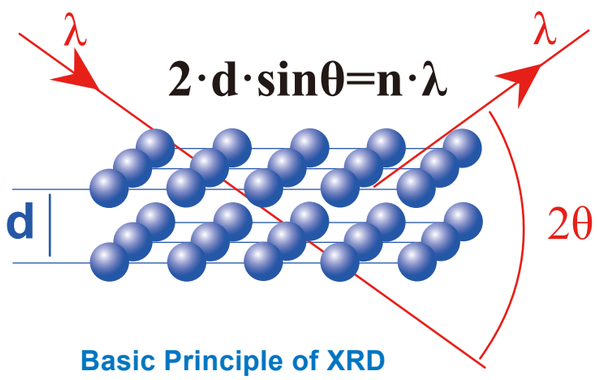
The XUANCAI X-ray diffractometer is a floor-standing X-ray diffractometer independently developed by the LANScientific. It integrates multiple technologies such as XRD and computer software, and can quickly conduct qualitative analysis of the main phases of samples in the form of powder, block or film. Quantitative analysis, crystal structure analysis, material structure analysis and crystallinity determination.

It has the characteristics of high precision, high accuracy, good stability, wide application range, easy operation and intelligence. It can be used for materials research, universities and research institutes, building materials, metals, minerals, plastic products, pharmaceuticals and semiconductors, providing high-precision analysis in many fields.

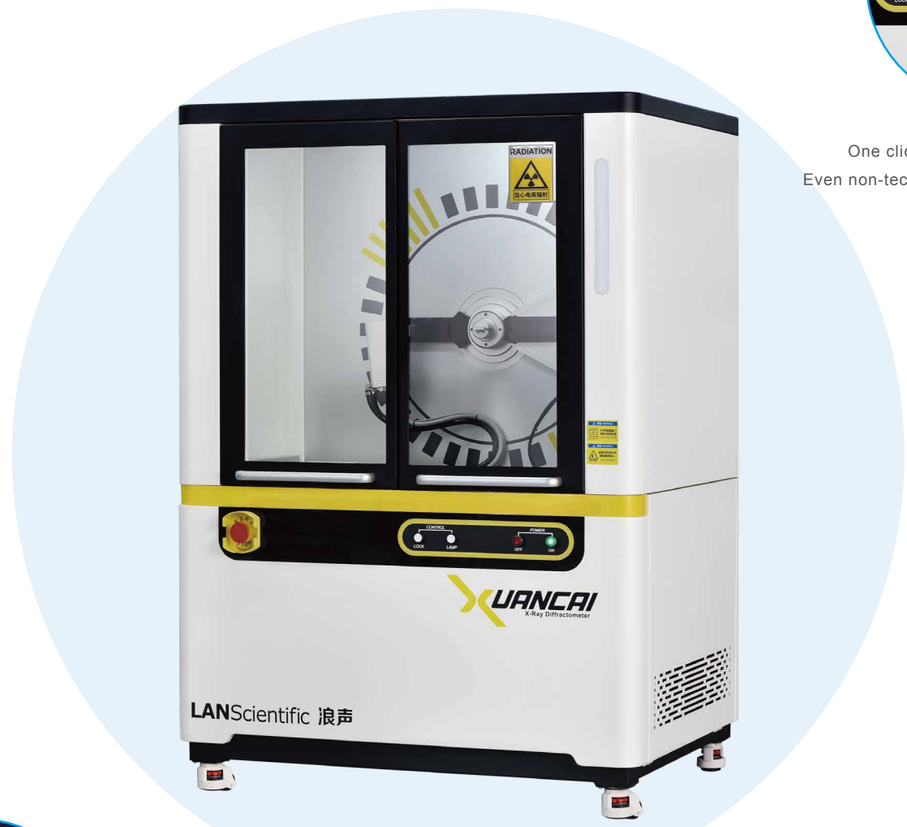


The Principle of X-ray Diffractometer

When a monochromatic X-ray is incident to the crystal, because the crystal is composed of unit cells arranged by atoms, the distance between the atoms arranged in these rules is the same order of magnitude as the incident X-ray wavelength, therefore, the X-rays scattered by different atoms interfere with each other, producing strong X-ray diffraction in some special directions. And the orientation and intensity of the diffraction in space are closely related to the crystal structure, which is the basic principle of X-ray diffraction.



Basic Principle of XRD



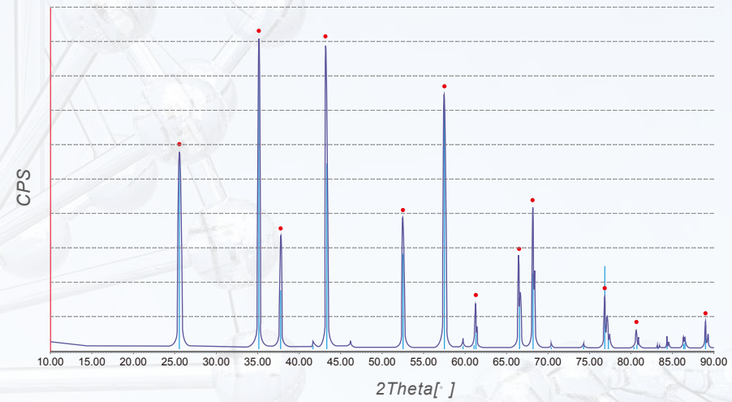
One click operation，Easy to use，
Even non-technical people can easily master it

Large showcase glass door
Observation without blind spots
In situ analysis process

Stop with one click
Give operators full flexibility

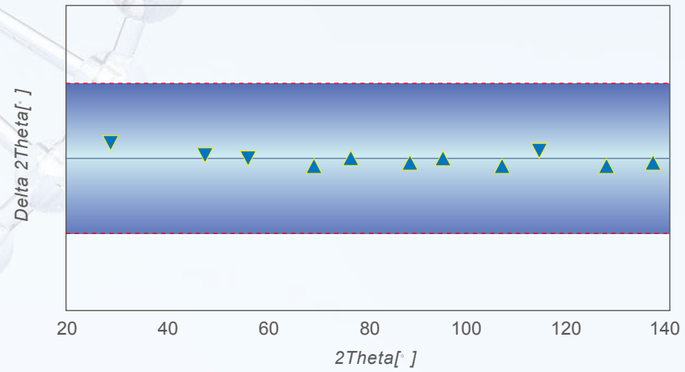
Performance Characteristics

XUANCAI—high stability, high precision, high efficiency



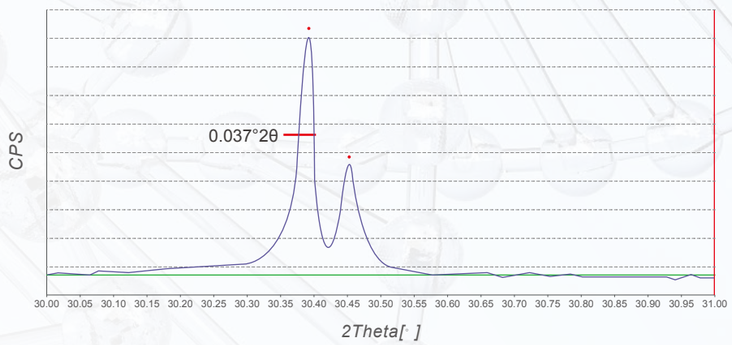
Excellent linearity

When using the national standard sample for on-site detection, the 2θ angle deviation of all peaks in the whole spectrum range ±0.02° within the diffraction angle measurement range, showing excellent angular deviation linearity



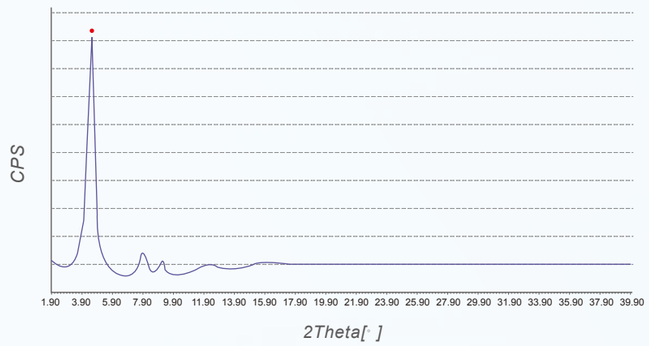
Unmatched resolution

The national standard LaB_6 with high-performance detector and high-resolution mode is displayed by the measurement as FWHM<0.04°2θ



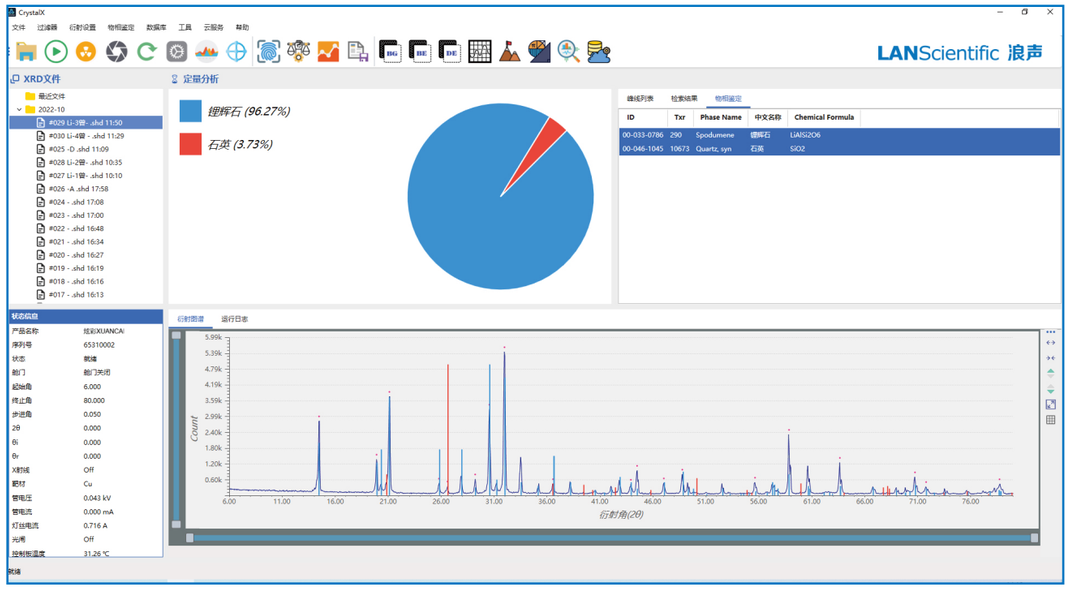
Excellent low-angle performance

Diffraction patterns show excellent low-angle performance for metal framework materials (MOF materials) analysis.



Software Advantage

CrystalX software independently developed by LANScientific has a simple interface, powerful functions and easy to use. It has wide coverage, high accuracy and strong compatibility. It is an ideal choice for analyzing XRD data, making the process of processing and analyzing XRD data more convenient and portable!



One-click operation

XUANCAI interface is intuitive, user-friendly, and simple to operate. No training is required, and even non-technical personnel can easily master it.

User management

XUANCAI supports the creation of personal user accounts, allowing users to freely adjust configurations to meet their specific needs, and can save configurations and batch programming.

Intelligent

The device is equipped with analysis software that helps analyze measurements, view data, and transform data. It can also be transmitted and managed to easily realize system data docking and sharing.

Safety

The large glass showcase door allows observation of the in-situ analysis process without blind spots, and can effectively shield X-rays. It also has a protection safety linkage lock device that automatically cuts off during the test. After the sample cabin is closed, it has fully closed performance. The operation interface has a prompt function for the sample cabin to be closed.

Technical Parameters

Project	Parameter
Goniometer	Vertical goniometer,using optical encoder technology,diffraction circle radius ≥ 300mm
2θ Range	-110°- +168°
X-Ray Tube	Cermet X-ray tube,focus:1x12mm,Cu target,Co target,Cr target,Mo target are optional
High voltage Generator Power	3000W
Size	1400 x 1100x 1994mm(L×W×H)
Weight	650KG
Power Supply	220V±10V,50Hz The power of the whole machine is≥4500W
Drive Mode	AC servo motor drive + dual optical encoder
Heat Dissipation	Using an external water circulation cooling system, powerful cooling and surging power
Detector	DPPC detector(Digital Pulse Processing Counting Detector),counting throughput≥1×10^7CPS.The DPPC detector can effectively suppress sample fluorescence and provide excellent peak-to-back ratio even for strongly fluorescent samples.There is no need to use a secondary monochromator.The DPPC detector provides energy dispersion spectroscopy data while providing diffraction data to support elemental analysis.
Interface	USB interface connects to PC to control XRD
In Situ Analysis Properties	Provides 5-way air source interface, 4-way power supply in the cabin,4-way motor drive, 2-way control bus,and integrated support for a variety of in-situ analysis accessories.
Cloud Service Functions	"XUANCAI" is equipped with a synchronizable mobile APP service to support card-based management of diffraction data and support access to knowledge management systems.
CrystalX Phase Search Software	The instrument has the following functions:raw data direct retrieval function,data processing software,phase quantitative analysis,programmable quantitative analysis,standard-free quantitative analysis,standard-free grain size analysis,powder diffraction structure refinement, Crystal analysis software dedicated to powder diffraction structure analysis function. CrystalX automatic mode can automatically perform phase analysis after obtaining diffraction data, and give the percentage of each component of the phase, which greatly reduces the requirements for users. There is no need for manual retrieval, background deduction, smoothing, and manual peak search. Just click "Start Test" and the rest will be automatically analyzed by CrystalX software

Application scenario


Geology and exploration

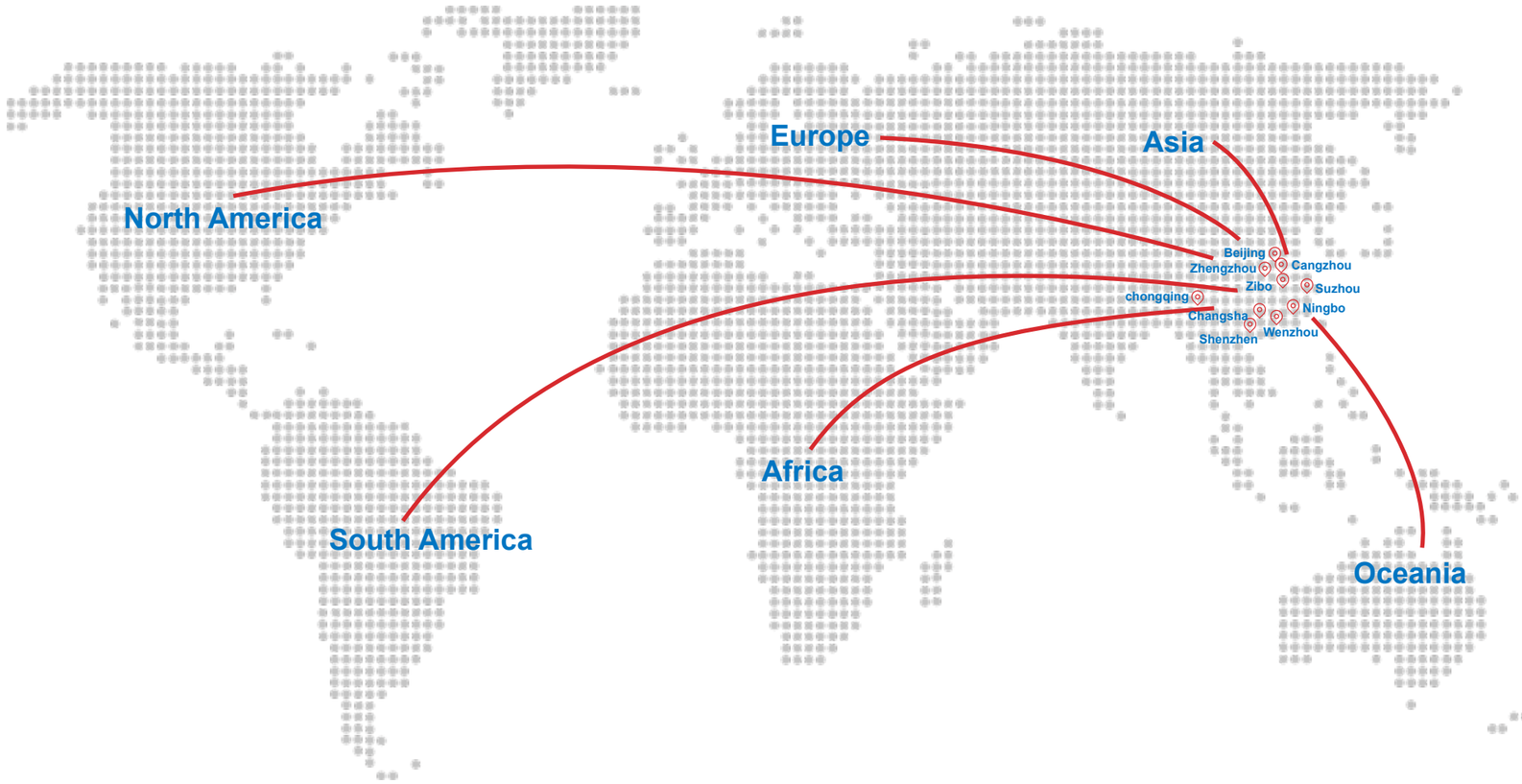

New technology material


Chemical industry


Research and education


Biomedicine


Metal compounds



ABOUT US

LANScientific Co., LTD. has been devoted to R&D of precise instrument technology since founded in 2012. With more than 10 significant innovation patents, LANScientific has been increasingly professional and mature in fields including XRF, TXRF, EDXRF, X-Ray crystallography, XRD, RAMAN, SEM, LIBS, X-Ray optical devices, laboratory automation and X-Ray sources.

Based on accumulated professionalism and technical know-how, LANScientific insists on customer-oriented philosophy and unceasing innovation, committed to providing turn-key analytical solution to complex and diverse demands.

SERVICES

LANScientific is committed to providing customers with the most optimized solutions. We aim to help customers improve testing efficiency by cooperating with customers to provide solutions tailored to meet their needs and provide fast, safe and reliable support.

In order to meet the needs of customers in the application of analysis technology,LANScientific has established a comprehensive customer support system to provide customers with analysis consulting, demonstration analysis, training, etc., and constantly develop new analysis technology, analysis methods, technical exchanges with users, quickly provide cost-effective, high-quality solutions.

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LANScientific products have been exported to the United States, Dubai, Russia, Brazil, India and other more than 50 countries and regions, agents all over the world. In the future, we will continue to expand business territory with better products and more intimate service, so that domestic instruments to the world!