

XRD - 3700

X-Ray Diffractometer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

►► Product Introduction

XRD 3700 series diffractometer is designed for material research and industrial product analysis, and it is a perfect product which combines the conventional analysis and special purpose measurement.

- The perfect combining with hardware and software system, satisfy with the requirement of different application field academician, scientific research.
- High precision diffraction angle measuring system, obtaining more accurate measurement results
- High stability X-ray generator control system, and get more stable repeat measurement precision.
- Various functional accessories meet the requirement of different testing purposes.
- Program operation, integrated structure design, easy to operate, more beautiful appearance of the instrument

X-ray diffractometer is one universal testing instrument for revealing crystal structure and chemical information of material

- One and many phase identification of unknown sample
- Quantitative analysis of the phase in the mixed sample
- Crystal structure analysis (Rietveld structure analysis)
- The crystal structure change (high temperature and low temperature condition) of the abnormal condition.
- Thin film sample analysis, including film, multilayer film thickness, surface roughness, charge density.
- Analysis of micro area sample.
- Texture and stress analysis of metallic materials

►► Main Technical Indexes

- X-Ray generator

Rated output power: 3 kW

Tube voltage: 10~60kV 1kV/step;

Tube current: 5~50mA 1mA/step;

Stability of tube voltage and tube current: $\leq 0.005\%$

There are over pressure, over current, over power, no pressure, anhydrous, circulating water over temperature protection

KV, MA up and down, light brake switch by computer control function

►► **Goniometer and Control**

Radius of diffraction circle: horizontal θ - θ structure of sample, diameter of diffraction circle 225mm;

Scanning mode: continuous, step, OMG scanning mode, θ_s , θ_d arm adopts split motion control, the Angle linearity of the diffractometer is less than 0.02°;

Using servo motor, optical coding technology to control the rotation of goniometer, automatic elimination of space, Angle correction;

Positioning speed: 1500°/min;

Measuring range: θ_s : -3 — 80°, θ_d : -3 — 80°, 2θ : -6 — 160°;

Continuous scanning speed: 0.0012 — 50°/min; Minimum step width Angle: 0.0001°;

2θ Angle repetition accuracy: 0.0001°;

Linear accuracy of Angle 2θ : $\leq \pm 0.02^\circ$;

►► **Control Unit**

Automatic control of goniometer and X-ray generator

Automatic differential, integral conversion, automatic setting of various measurement parameters Spectral resolution: proportional counter $\leq 25\%$ (Cu ka Spectral line)

Counter high voltage continuous adjustable: 700-2100V, stability: less than 0.03%

►► **Computer (Dell)**

Dual core, 4G memory, 500G hard disk, independent graphics card, 19-inch LCD, HP1108 A4 format laser printer.

►► **Radiation protection and alarm device**

Lead + lead glass protection, with ray protection door opening function, light brake window and protective cover interlock, outside the protective cover ray measurement is not more than 1 μSV /h.

►► **XRD 3700 Control, data processing software**

Windows7 operating system control and application software;

Automatic control of X-ray generator tube voltage, tube current, light brake and ray tube aging training;

Control the goniometer to scan continuously or step by step, and collect diffraction data at the same time.

Conventional processing of diffraction data: automatic peak searching, manual peak searching, integral intensity, peak height, center of gravity, background deduction, smoothing, peak shape amplification, spectrum contrast, etc.

►► **Application Software (Refer to the instruction)**

Phase qualitative and quantitative analysis, K α_1 、 α_2 stripping, full spectrum figure fitting, choose peak fitting, half high width, grain size, determination of cell, 2 types stress calculation, the diffraction lines index, multiple graphics, 3 d drawing, the diffraction data calibration, background subtraction, the prototype function such as quantitative analysis, the whole spectra fitting (WPF), XRD diffraction spectra simulation.

- **Comprehensive regulation** : $\leq 0.1\%$

- **Dimensions** : 1000×800×1600mm

►► **Conditions of Use**

1. Working environment temperature: 10°C ~ 30°C;
2. Ambient relative humidity: $\leq 80\%$;
3. Power supply: unidirectional, AC 220V, 50HZ, power supply voltage fluctuation shall not exceed -10%---+10% of the rated voltage, power supply capacity shall not be less than 5KVA;
4. There should be a good grounding device, grounding resistance is not more than 4 ohm;
5. Cooling system: independent self-circulating cooling system, using pure water, about 20 litres;
6. There shall be no arc and high-frequency interference caused by welding machine, high-frequency furnace and other equipment in the power supply line;
7. There should be no flammable and corrosive gases in the surrounding environment, and dust and vibration should be avoided as far as possible.

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

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Spectro 2080+
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Optima Gas
Chromatograph
3007



Optima Gas
Chromatograph
2979 Plus



Flash
Chromatograph



Atomic Absorption
Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



HEMA 2062
Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
Carbon 3800



Fully Automated
CLIA



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Ion Chromatograph



Water purification
system

Regulatory compliances



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 **Analytical**[®]
Technologies Limited

HPLC Solutions MultipleLabs Analytical Bio-Med Analytical Distributors Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net

W. www.analyticalgroup.net
www.hplctechnologies.com
www.multiplelabs.com

Sales & Support Offices:
across the country :
Distributors & Channel
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