



# **BENCHTOP XRD ANALYZER - X-RAY DIFFRACTOMETER - FRINGE C1600**

## A Good Helper for Phase Analysis

Benchtop XRD Analyzer – X-ray Diffractometer – FRINGE C1600 utilizes the diffraction phenomenon of X-rays within a crystal to obtain characteristic X-ray signals after diffraction. Through processing, it produces a diffraction pattern. This method is used to gather information such as material composition and the structure or morphology of atoms or molecules within the material.

The company has developed the FRINGE C1600, a multi-functional X-ray diffraction analyzer suited for various analytical applications across fields like materials research, biomedicine, minerals, plastics, and semiconductors. The FRINGE C1600 can rapidly conduct the following analyses on samples in powder, bulk, or film forms:

- Qualitative and quantitative phase analysis
- Determination of crystal structure and orientation
- Measurement of crystallinity
- Grain sizing
- Measurement of macroscopic and microscopic stresses
- Measurement of lattice parameters

## APPLICATIONS

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Benchtop XRD Analyzer – Titanium Dioxide

### Titanium Dioxide

Benchtop XRD Analyzer – Polymer Material

## **Polymer Materials**

Benchtop XRD Analyzer – Cement

## **Cement**

Benchtop XRD Analyzer – Industrial Ceramic Material

## **Industrial Ceramic Materials**

Benchtop XRD Analyzer – Lithium Battery Industry

## **Lithium Battery Industry**

Benchtop XRD Analyzer – Biopharma

## **Biopharma**

Benchtop XRD Analyzer – Other Fields

## **Other Fields**

## **FEATURES**

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## **$\theta$ -2 $\theta$ linkage goniometer system**

The patented new  $\theta$ -2 $\theta$  linkage goniometer system features a single-axis drive mechanism. It offers precision and simplicity, along with excellent performance.

## **Multichannel analysis system**

The Benchtop XRD Analyzer – X-ray Diffractometer – FRINGE C1600 utilizes digital multichannel analysis technology, enabling the distinction between diffraction peaks and fluorescence interference without the need for a monochromator. This technology also enhances diffraction intensity.

## **Safety**

During the testing process, it is equipped with an automatic cutting protection device and a safety linkage lock device. Upon closure, the sample chamber is fully enclosed, and the operation interface includes a function to close the sample chamber.

## **XRD for everyone**

After acquiring diffraction data, CrystalX automatically conducts phase analysis and provides the percentage of each phase component, significantly reducing user involvement. Users simply need to click "start testing," and CrystalX software handles the rest.

# Integrated sola slits

The integrated Sora slits, devoid of any motion-adjustable parts, enhance the reliability of the goniometer system. This feature enables the FRINGE C1600 desktop XRD to be installed on in-vehicle laboratory platforms.

# DPPC detector

Digital multi-channel analysis technology can differentiate between diffraction peaks and fluorescence interference without the need for a monochromator, thereby enhancing diffraction intensity.

## TECHNICAL SPECIFICATIONS

|                                      |                                                                                                                                                                                                       |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goniometer                           | $\theta$ -2 $\theta$ linkage vertical goniometer, diffractive circle radius 150mm                                                                                                                     |
| Angle measuring range of Angle meter | -3° - +150°                                                                                                                                                                                           |
| Precision                            | The deviation of $\pm 0.02^\circ$ in the full spectrum                                                                                                                                                |
| FWHM                                 | <0.04°2 $\theta$                                                                                                                                                                                      |
| Sola slit                            | The integrated sora slits, without any motion-adjustable parts, increase the reliability of the goniometer system, allowing the FRINGE desktop XRD to be installed on in-vehicle laboratory platforms |
| X-Ray Tube                           | Cermet X-ray tube, with maximum power of 2.2KW, focus: 1 x 10 mm, default configuration cu target, optional Co, Cr, Mo target                                                                         |
| High Voltage Generator Power         | 1200W, maximum tube voltage 40KV, maximum tube current 30mA.                                                                                                                                          |

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|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Size                       | 580 x 450x 680mm□ L×W×H□                                                                                                                                                                                                                                                                                                                                                                                                         |
| Weight                     | 120KG                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power Supply               | 220V±10V, 50Hz, the whole power is 2000W (110V also available)                                                                                                                                                                                                                                                                                                                                                                   |
| Heat dissipation           | FRINGE C1600 uses an external water circulation cooling system to cool the surging power powerfully                                                                                                                                                                                                                                                                                                                              |
| Detector                   | DPPC detector                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Interface                  | The compact home wall plug provides power, and the USB interface connects to the PC for controlling the XRD                                                                                                                                                                                                                                                                                                                      |
| Air source                 | A 2-way air supply interface is available for in-situ analysis or atmosphere protection                                                                                                                                                                                                                                                                                                                                          |
| Security                   | The FRINGE C1600 has an air spring large window lift door, which can observe the in-situ analysis process without dead angle, and can effectively shield X-rays. It has a protection and safety interlock device that automatically cuts off during the test process. The operation interface has the function of closing the sample compartment                                                                                 |
| Cloud service capabilities | FRINGE C1600 uses a synchronizable mobile APP service to support card management of diffraction data and access to knowledge management systems                                                                                                                                                                                                                                                                                  |
| CrystalX software          | A special crystal analysis software CrystalX for FRINGE C1600. After obtaining diffraction data, CrystalX automatically conduct phase analysis, and give the percentage of each component of the phase, greatly reducing the requirements of the user, no manual retrieval, no need to buckle the background, no need to smooth, no need to manually peak, just need to click "start testing", the rest to the CrystalX software |



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