



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

## **Powerful KW-class power, excellent performance benchtop XRD harvester**

The Benchtop XRD Analyzer – X-ray Diffractometer – FRINGE EV utilizes the solenoid slit to direct the X-ray beam, which then irradiates the sample through a divergent slit. The sample stage is positioned at the center of the goniometer, operating on the reflection geometry  $\theta$ s- $\theta$ d. When the X-ray beam meets Bragg's law, diffraction occurs in a specific direction. The diffracted beam passes through anti-scatter, Soller, and receive slits before reaching the X-ray detector. Finally, the acquired diffraction map is displayed through the data processing system in the analysis software.

Benchtop XRD Analyzer – X-ray Diffractometer – FRINGE EV is a high-power, miniaturized benchtop X-ray diffractometer developed independently by the company. It enables quick characterization of sample phases in powder, block, or thin film forms, as well as crystal structure analysis, material structure analysis, and crystallinity determination. With its user-friendly operation, high precision, stability, and wide applicability, it serves as an ideal solution for material research, universities, research institutes, building materials, biomedicine, and various other fields.

Benchtop XRD Analyzer – X-ray Diffractometer – FRINGE EV

## **APPLICATIONS**

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Benchtop XRD Analyzer - Geology and Survey

### **Geology and Survey**

Benchtop XRD Analyzer - Metal Material

### **Metal Material**

Benchtop XRD Analyzer - Chemistry and Catalysts

## **Chemistry and Catalysts**

Benchtop XRD Analyzer - Research and Education

## **Research and Education**

Benchtop XRD Analyzer - Pharmaceutical Industry

## **Pharmaceutical Industry**

Benchtop XRD Analyzer - Ceramics and Cement

## **Ceramics and Cement**

## **FEATURES**

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### **Air spring large window lift door**

The air spring large window lift door not only saves desktop space but is also suitable for any desk, effectively improving space utilization rates.

## **Built-in water circulation cooling system**

The FRINGE EV features a built-in water circulation cooling system, eliminating the need for an additional chiller. The software can display real-time information such as the X-ray tube water temperature, flow, and flow rate.

## **Safety**

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

## **XRD for everyone**

After collecting diffraction data, CrystalX automatically conducts phase analysis and provides the percentage of each component of the phase. This significantly reduces user requirements, as users only need to click "start testing," leaving the rest to the CrystalX software.

## **Integrated sola slits**

The integrated Sora slits, without any motion-adjustable parts, enhance the reliability of the goniometer system. This feature enables the FRINGE EV desktop XRD to be installed on in-vehicle laboratory platforms.

|                                      |                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Goniometer                           | $\theta$ - $\theta$ 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                                 | $<0.04^\circ 2\theta$                                                                                                                                                                                                                                                                                                                         |
| 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.                                                                                                                                                                                                                                                                                  |
| 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 EV 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 EV 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 EV uses a synchronizable mobile APP service to support card management of diffraction data and access to knowledge management systems                                                                                                                                                                                                  |

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| CrystalX software | A special crystal analysis software CrystalX for FRINGE EV. 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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**Torontech Inc.**

251 Consumers Road, Suite 1200  
Toronto, Ontario, M2J 4R3, Canada 

Phone: +1 416 368 2721 | Fax: +1 416 981 7652  
Email: [info@torontech.com](mailto:info@torontech.com)

**Torontech, LLC**

601 Brickell Key Drive, Suite 700  
Miami, FL 33131, USA 

Toll-Free: 1-866-383-7919  
Email: [sales@torontech.com](mailto:sales@torontech.com)

**Torontech ME FZE**

Meydan Grandstand, 6th Floor,  
Meydan Road, Nad Al Sheba,  
Dubai-261440, UAE 

Phone: +971 488 19252  
Email: [me@torontech.com](mailto:me@torontech.com)

