BRUKER ADVANCED X-RAY SOLUTIONS

YOUR DEDICATED PERFORMER
for Powder Diffraction
D8 FOCUS


OK

D8 FOCUS
YOUR DEDICATED PERFORMER for Powder Diffraction

- ***Highly accurate***
- ***Optimum performance***
- ***Quick to learn***
- ***Intuitive operation***
- ***Precision engineered***
- ***Upwardly compatible***
- ***Advanced safety features***
- ***Attractively priced***

The concept behind the D8 FOCUS is to provide you with a reliable workhorse for powder diffraction applications – attractively priced entry-level solution without compromise.

The D8 FOCUS is designed to be the ideal solution for phase and structure analysis of your powder samples. If these features of our D8 FOCUS are in phase with your requirements, turn the page and ...

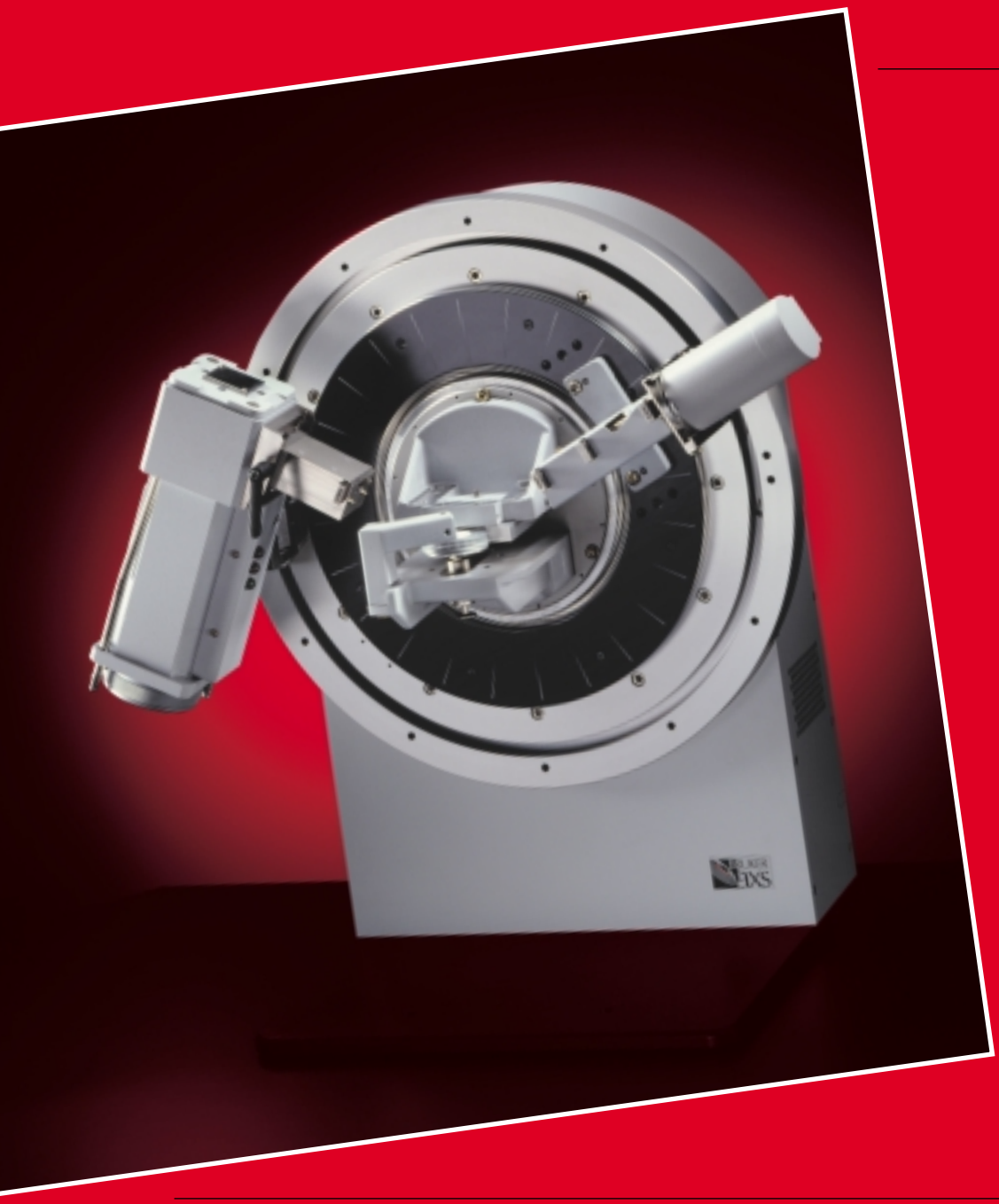
find out what's inside

D8 FOCUS
The Decision for Precision

The D8 FOCUS achieves optimum results in X-ray powder diffraction applications. The D8 FOCUS standard configuration is equipped with all the necessary components for:

- Qualititative phase analysis
- Quantitative phase analysis
- Structure solution and refinement
- Crystallite size determination
- Microstrain analysis

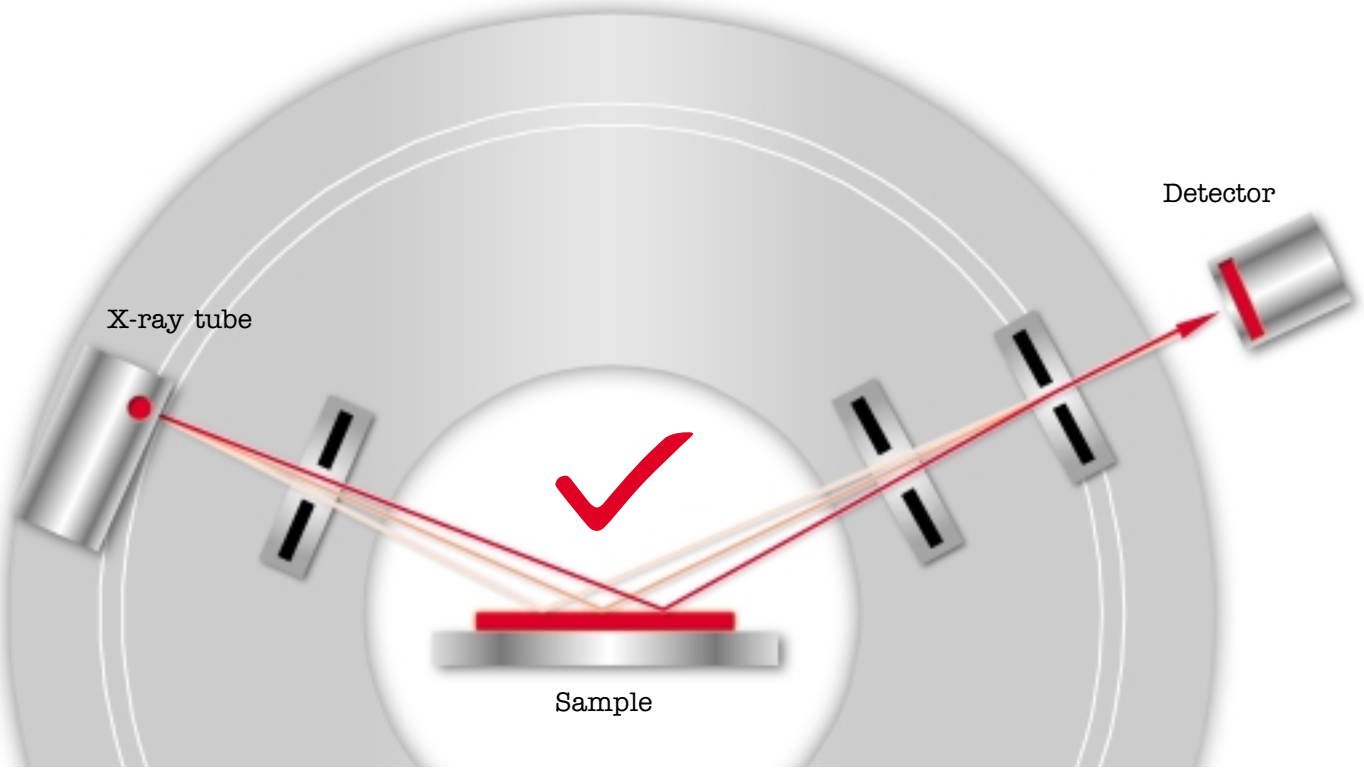
The optimum geometry is the most important criterion for you to achieve fast, precise results and abundant structural information in the characterization of materials. Sample variety is not an issue – the D8 FOCUS provides a pathway to handle each and every sample.



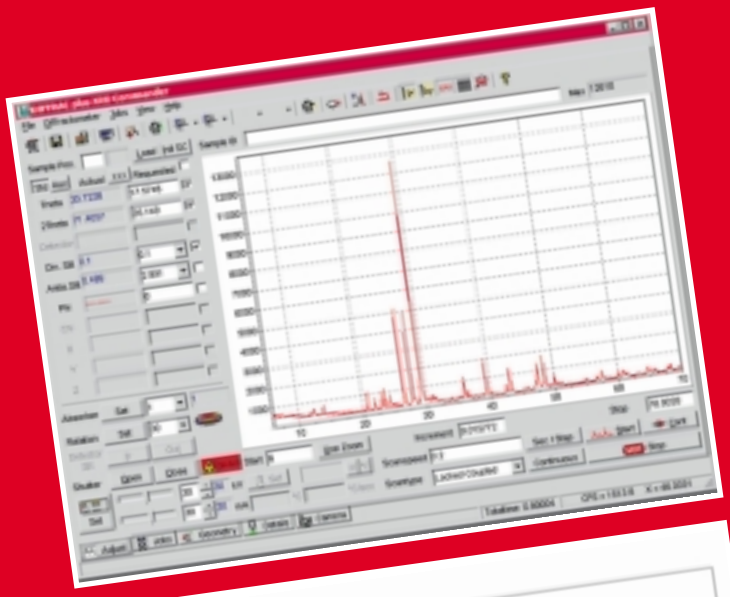
POWDER

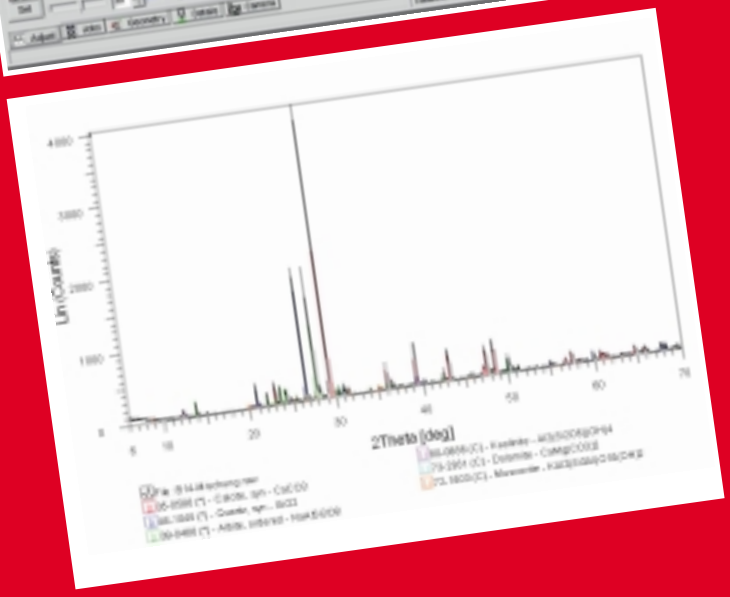
D8 FOCUS
Preconfigured for Precise Powder Diffraction

The D8 FOCUS is preconfigured for a wide range of analytical tasks and is engineered to be your dedicated performer for X-ray powder diffraction. The standard configuration is called Bragg-Brentano geometry. It is the solution for most applications in X-ray powder diffraction.



EASY-TO-USE

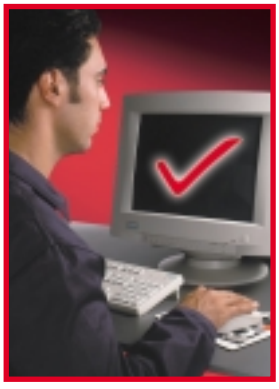




D8 FOCUS
The Decision for Software Efficiency

An outstanding feature of Bruker AXS's X-ray Diffraction Solutions is the user-friendly operation for measurement analysis and presentation. The easy-to-use concept of DIFFRAC^{plus} software provides an intuitive process in obtaining the results you want.

The main application for material characterization is qualitative and quantitative phase analysis. Beyond phase analysis, DIFFRAC^{plus} provides additional software packages for other applications like structure examination, crystallite size determination and microstrain analysis. Powerful algorithms allow you to perform all of these applications standardless.



- ***Intuitive measurement setup with XRD Wizard***
- ***Simple entry of search criteria***
- ***Superior full-pattern search compatible with commercially available databases***
- ***Customizable user interface***
- ***Comprehensive graphical display options***
- ***Direct data exchange with spreadsheets, word processors and other Windows applications***
- ***Network ready (TCP/IP)***

DIFFRAC^{plus} highlights:

Measurement

- *Choice of table or graphic charts for measurement parameters*
- *Full network compatibility including interactive measurement from remote locations*

Evaluation

- *Intuitive graphical user interface*
- *Automatic or interactive evaluation*
- *Real time calculation and display parameters*

Analysis

- *DIFFRAC^{plus} SEARCH for fast identification of phases with commercially available databases*

Report

- *Individually configure your presentation style*
- *Direct data exchange with other Windows applications*

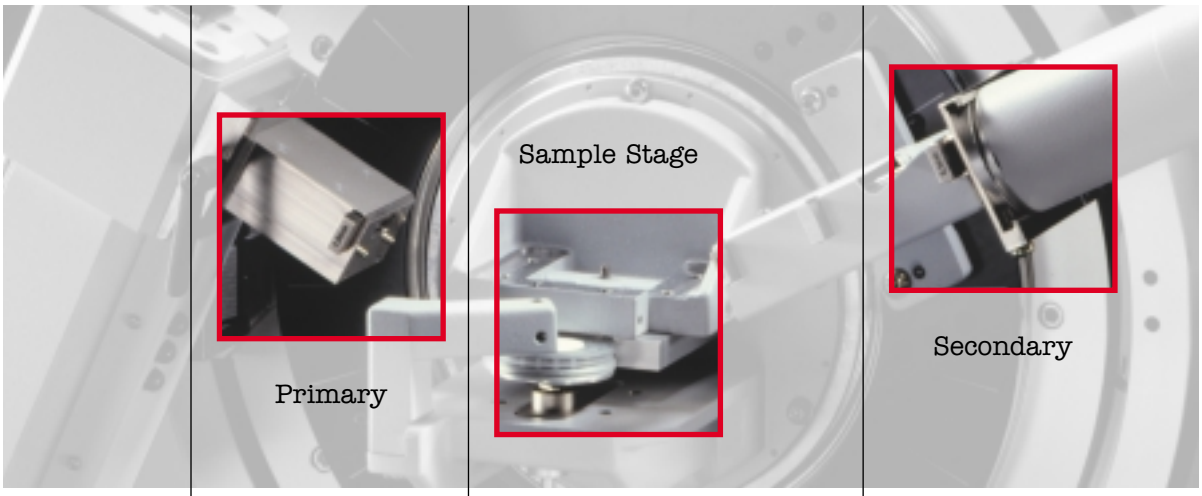
Push-Plug technology: changing sample holders as well as complete configurations has never been easier!

D8 FOCUS
Push-Plug Technology: No Tools Required!

Our unique Push-Plug technology allows effortless exchange of optics, sample holders or detectors without realignment. The D8 FOCUS is your dedicated performer, providing highly efficient solutions for most applications in X-ray powder diffraction. It provides a flexible platform for future expansion by offering numerous accessory options that will grow with your needs.

Turn the page and you will find the only tool that is required to fine-tune the configuration for your dedicated performer ...

D8 FOCUS
Fine-Tune Your Configuration



- ***Automated slit***
- ***Göbel Mirror for parallel beam geometry***

- ***Flip-Stick for 9 samples***
- ***Rotating stage***
- ***High-temperature chamber, heatable up to 1600 °C / 2912 °F***
- ***Low-temperature chamber (LN_2)***

- ***Soller slit and scintillation counter for grazing incidence diffraction***
- ***1D detector (PSD) to reduce measuring time even with very small sample amounts***
- ***Variable slit and Sol-X for geological/ fluorescent samples***

Examples of optional components:

■ *Göbel Mirror for parallel beam geometry permits exact results on irregularly shaped samples.*

■ *Motorized rotating sample stage for large grain samples.*

■ *Flip-Stick with sample rotation for batches of 9 samples, e.g. for overnight measurement.*

Fine-tune your configuration with even more options!

Use the D8 FOCUS configurator to take the system configuration process into your own hands.

Technical Data

Configuration	Vertical Theta/2Theta geometry
Measuring circle diameter	401 mm
Angular range (without accessories)	360°
Max. useable angular range	-110° < 2Theta ≤ 168° (depends on accessories)
Angle positioning	Stepper motors with optical encoders
Smallest addressable increment	0.0001°
Reproducibility	± 0.0001°
Maximum angular speed	30°/s (depends on accessories)
General space requirements	
Exterior dimensions	2035 x 1400 x 1260 mm, 46.90 x 55.12 x 46.90 inch (h x w x d)
Weight (without optional electronics)	550 kg
Cooling water supply (without optional internal water chiller)	Flow: min. 4 l/min., Pressure: 4 - 7.5 bar with no back pressure, Temperature: 10 to 20 °C
Power supply	Single phase: 208 to 240 V, Three phases: 120 V, 230 V, 240 V; 47 to 63 Hz
Maximum power consumption	6.5 kVA (without controllers for optional equipment)

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D8 FOCUS

PHASE ANALYSIS IN YOUR OWN HANDS.

Dedicated performance, attractively priced:

By introducing the D8 FOCUS, Bruker AXS offers a complete solution – an entry-level X-ray diffraction system for powder samples. Based on the proven D8 technology, the D8 FOCUS continues the high quality standards of Bruker AXS.

The D8 FOCUS is an upwardly compatible classical powder Diffraction Solution for phase analysis. It opens your door to an affordable pathway into the world of Bruker AXS material research solutions.
The D8 family provides superior performance and high precision.

Review the checklist for other aspects that may have an impact on your decision.

- Highly accurate
- Optimum performance
- Quick to learn
- Intuitive operation
- Precision engineered
- Upwardly compatible
- Advanced safety features
- Attractively priced

WHAT IS X-RAY DIFFRACTION?

At the beginning of the 20th century, Max von Laue and William H. and William L. Bragg formulated the principles of X-ray diffraction – based on the findings of W. Conrad Röntgen – that are still valid today. Phase analysis with the aid of powder diffraction is based on Bragg's law:

$$d = \frac{n \cdot \lambda}{2 \cdot \sin \theta}$$

It combines the characteristic crystal lattice spacing d for each solid material with the applied X-ray wavelength λ. The measurement provides the intensity distribution as a function of the angle θ. If Bragg's law is fulfilled, maximum intensity is observed. This one simple "fingerprint" can unmistakably identify the unique crystalline phases contained in any sample. Even today, new phases are discovered and made available to others via databases. These informations serve in applications like quality control of raw materials, exploration and mining, or pure scientific research.