



D8 ADVANCE ECO

- Designed for the ecological and economical needs of today

The new D8 ADVANCE ECO is a novel, fully-featured X-ray diffractometer designed for the ecological and economical needs of today. As the resources to procure and maintain X-ray analytics become increasingly limited, the requirements on accuracy, precision and speed are more demanding than ever.

The D8 ADVANCE ECO represents the ideal solution: Its minimum ecological footprint, ease of use, and outstanding analytical performance are the most prominent features. Various streamlined instrument configurations make the D8 ADVANCE ECO the perfect diffractometer for any budget level.

The D8 ADVANCE ECO is fully compatible to the D8 diffractometer family guaranteeing flexibility for the future. Your system can be easily upgraded for new applications allowing you to take maximum advantage of your investment.

Features

- High brilliance 1kW X-ray source for highest system efficiency
- High performance linear detectors for best sensitivity
- Minimal electrical power consumption
- Only single phase power required
- No external water cooling required

ECOlogical

Featuring a high-brilliance 1kW line focus X-ray source the D8 ADVANCE ECO has very low energy consumption, does not require external water cooling and has no special needs concerning lab infrastructure. All that is necessary is a simple domestic wall socket. Thus, the installation and positioning of the unit is easy and flexible: Plug'n Analyze.

The D8 ADVANCE ECO has a minimum cost of ownership and the smallest ecological footprint of any floorstanding XRD instrument. All this is achieved without sacrificing analytical performance.

- About 50% less consumption of electrical energy
- Potentially saves up to 1.700 m³ tap water per year

ECOperformance

Equipped with one of our unique silicon strip detectors, the D8 ADVANCE ECO offers the highest performance in terms of data quality and speed for all X-ray scattering applications at ambient and non-ambient conditions. Equipped with the new SSD160 1-dimensional detector the D8 ADVANCE ECO impresses with more than 100 times faster data collection compared to out-dated point detectors such as scintillation or proportional counters, for the same price. For a little more, the LYNXEYE XE detector is even faster and, in addition, features unmatched energy resolution for complete elimination of sample fluorescence, resulting in best peak to background.

- Phase identification
- Quantitative phase analysis
- Microstructure analysis
- Structure determination and refinement
- Residual stress
- Texture
- Grazing Incidence Diffraction (GID)
- X-ray Reflectometry (XRR)
- Small Angle X-ray scattering (SAXS)

Plug'n Analyze™



No External Cooling Water



Single Phase Power



LYNXEYE 1-D detector

ECOnomical

Reliable, low cost of ownership

The D8 ADVANCE ECO line features high-end performance using instrument configurations for any budget level. Its operational expenses are significantly lowered due to reduced need for resources such as water and electrical power. Reliability is assured with superior instrument quality, and backed up with unrivaled component guarantees.

- Zero cost for external water.
- Significantly reduced cost for power due to an efficient 1kW generator and no power for an external chiller
- **X-ray tube guarantee:** All high-brilliance X-ray sources available for the D8 ADVANCE ECO come with a 3-year warranty.
- **Goniometer guarantee:** The robust and maintenance-free design of the goniometer provides maximum mechanical strength, long life, and thus superior data quality. This includes an outstanding 10-year warranty.

No compromises on accuracy, safety, or the future

The D8 ADVANCE ECO delivers on industry-leading instrument accuracy, compliance with the highest standards for safety, and offers a comprehensive upgrade path if new applications are needed in the future.

- **Alignment guarantee:** We guarantee that the accuracy of each peak position over the entire angular range is equal or better than $\pm 0.01^\circ 2\theta$, with respect to the NIST standard reference material SRM1976b
- The D8 ADVANCE ECO line complies with all current EU directives, establishing and guaranteeing the world's highest standards for analytical X-ray equipment including, but not limited to, machinery safety, X-ray safety, electrical safety, and electromagnetic compatibility
- As the ECO line is based on the current generation DAVINCI design platform of the D8 ADVANCE, there is a wide variety of state-of-the-art components, sources, and stages available to upgrade your system to additional application capabilities in the future



Bragg-Brentano geometry with LYNXEYE detector

Technical Specifications		
Configurations	Vertical goniometer, Theta/Theta geometry	
Measuring circle diameter	Predefined at 500mm, or any intermediate setting between 435 mm and 600 mm	
Angular range (without accessories)	360°	
Max. usable angular range (depending on accessories)	-110° < 2Theta ≤ 168°	
Angle positioning	Stepper motors with optical encoders	
Instrument alignment (at constant environmental conditions)	Equal or better than ± 0.01° 2Theta; NIST SRM1976b always included	
Resolution (FWHM) (depends on accessories)	0.028° 2Theta at ~ 30° 2Theta in Bragg-Brentano geometry	
Maximum angular speed (depends on accessories)	20°/s	
General space and infrastructure requirements:		
Exterior dimensions (h x w x d)	1,868 x 1,300 x 1,135 mm 73.5 x 51.2 x 44.7 inch	
Weight (without optional electronics)	770 kg	
Cooling water supply	No external cooling water required (optional equipment may require water cooling)	
Power supply	Single Phase, 200 to 230 V, 50/60 Hz	
Maximum power consumption (without controllers for optional equipment)	<3.5 kVA	
ECO configurations	#1	#2
Detector	SSD160	LYNXEYE
Sample Stages	Fixed, rotating, 9-position	Fixed, rotating, 9-position
Fully extendable and upgradable with the full range of accessories available for the D8 ADVANCE		

Patents:

Primary TWIN: US 6665372, DE 10141958. Secondary TWIN: US 7983389 B2
 Encapsulated (sealed) X-ray mirror: EP 1 503 386 B1
 LYNXEYE turned 90°: EP 1 647 840 A2, EP 1 510 811 B1



Bruker AXS GmbH

Karlsruhe · Germany
 Phone +49 721 50997-0
 Fax +49 721 50997-5654
 info.baxs@bruker.com

www.bruker.com