TELLUS

X-RAY POWDER DIFFRACTOMETER

DECTRIS INSIDE

VERY USEFUL AND POWERFUL TECHNIQUE FOR

- ENVIRONMENTAL, GEOLOGY AND MINERALOGY
- CHEMICAL PROCESS DEVELOPMENT, ANALYTICAL CHEMISTRY
- QUALITY CONTROL
- PHARMACEUTICALS, DRUG DISCOVERY
- FORENSIC SCIENCE
- RESEARCH AND EDUCATION

KEY FEATURES

COMPACT DESIGN

THETA/THETA GEOMETRY

HIGH EFFECTIVE HPC DECTRIS* DETECTOR

FAST MEASUREMENTS

HIGH SIGNAL/NOISE RATIO

LONG LIFETIME X-RAY TUBE and DETECTOR

NO EXTERNAL COOLING

SAFETY GUARANTEED

ANALYTICAL SOFTWARE

SOLUTION WITH OPPORTUNITIES OF ANALYTICAL TOOL AT A LOW COST

TELLUS is a compact high-tech instrument for X-ray diffraction analysis, including research and identification of new compounds, basic quality and composition control of various crystalline substances (solid samples, powders, etc.).

TELLUS is an ideal assistant in the academic laboratory, helping the researcher perform high-precision studies of synthesized samples, while the student can quickly and smoothly master X-ray diffraction techniques.

The diffractometer can be equipped with either 1D or 2D photon counting Si detector with a pixel width of 50 m providing fast and high-resolution measurements. Fast, robust and maintenance free detectors with 100% efficiency for X-ray radiation with minimum loss of intensity and maximum linear range. The precise goniometer together with the small pixel width ensures the angle accuracy of better than ±0.01˚ (2Θ). The instrument with proper optic components provides the peak width at least 0.05° 2 over the full angular range.

The software interface with predefined experimental scenarios makes the measurement process clear even for new users, though the experts in XRD can create their own protocol. The software for analysis is based on the advanced analytical methods to make the quantitative and qualitative analysis of samples more precise.

Both the detector and the X-ray source have a long lifetime, what significantly reduces the maintenance costs and saves the budget.

	Dectris Mythen2 R 1D	Advacam MiniPIX TPX 3
Pixel size	50 µm by 8 mm	55 x 55 µm
Type / number of pixel	Linear 1D / 640	Matrix 2D / 250x250
Energy range (keV)	4 - 40	2 - 60
Mode	Single threshold	Two-threshold
Frame rate (Hz)	100	16
Cooling	Air	Air
Module weight (g)	100	41

ACCESSORIES

Optics	Incident beam mask, Soller slits, divergence slit, direct beam absorber, set of alignment slits
Sample holders	Standard holders (deep and shallow cavities, perforated), Standard Reference material holder, glass holders
K-beta filter	Ni 0.02 mm filter for diffracted beam
Standard Reference material	NIST 1976c
Optional accessories	• Anti-scattering slit • Zero diffraction plate • Rotating sample holder • Sample changer on 8 pcs • Knife edge - collimator • Heating chamber • Variable divergence slit (VDS) • Holder for the bulk samples

SOFTWARE PACKAGE

TELLUSCon
for system control and data acquisition

- Interface optimized for advanced and non-experienced users
- Measurement by steps or continuous scan
- Predefined measurement scenarios
- Data preprocessing
- Measurement report

SPECIALISED SOFTWARE
for advanced data analysis

- Data preprocessing (virtual monochromator, Lorentz-polarization factor correction, absorption correction, smoothing, background line definition)
- Peaks search
- Qualitative phase analysis
- Quantitative analysis with RIR and internal standard calibration methods
- Refinement of lattice parameters by whole pattern-fitting method (Rietveld, Pawley, Le Bail)
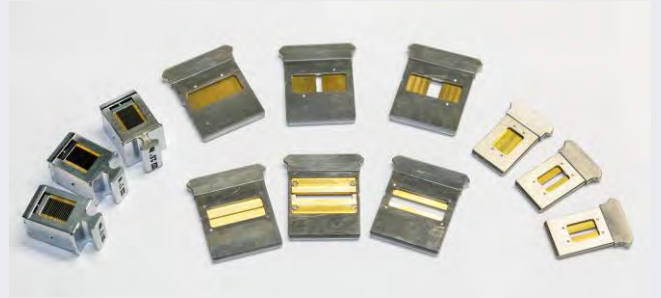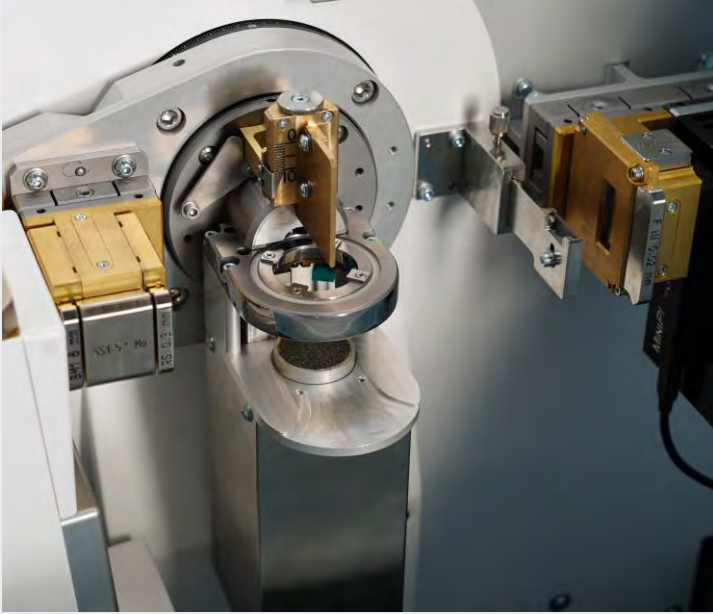- Analysis report

Databases

- COD (open- access collection)
- PDF-2 (optional)
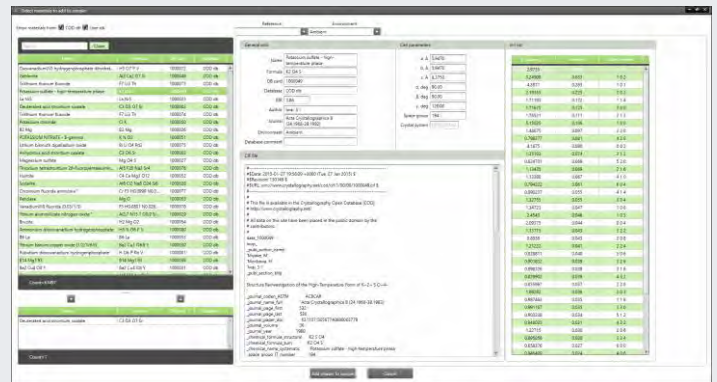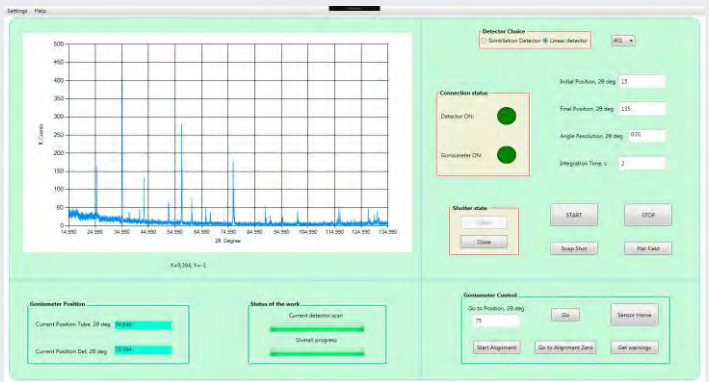
APPLICATIONS

- Pharmaceutical and cosmetics industries
- Forensic expertise
- Cement industry
- Oil-gas exploration
- Geology and mining
- Chemical industry
- Automotive industry
- Science and education
- And others.... (archeology, gemology, food industry etc.)

TECHNICAL DATA SHEET

Tube power	600/300 W (on request)
Target	Cu (Cr, Fe, Co, Mo – optional)
Cooling system	Internal water cooling: closed-circuit
Goniometer	θ-θ vertical, radius 150 mm
Scanning range	-6° ÷ +154° (2θ)
Minimal step	0.001° (2θ)
Positioning accuracy	+/- 0.01° (2θ)
Scanning speed	0.01-600°/min
Dimensions (W x D x H)/Weight	700x700x820 mm/115 kg
Personal computer	PC with OS Windows
Interface	USB/Ethernet