

XRD - 3500i

X-Ray Diffractometer



LABS / EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

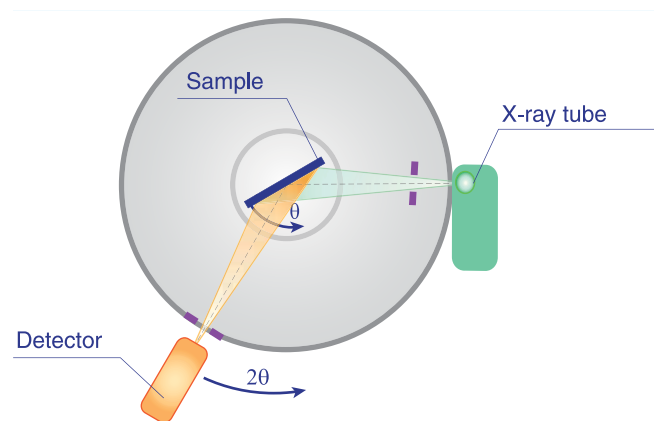
Analytical Technologies Limited

An ISO 9001 Certified Company

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X-ray diffraction is the dactyloscopy in material science , a reliable non-destructive technique of identification of crystalline matter

- Horizontal two-circle 2θ - θ goniometer
- High reliability and user-friendly operation
- Flexible design and wide range of options
- high automation for setting and measurements

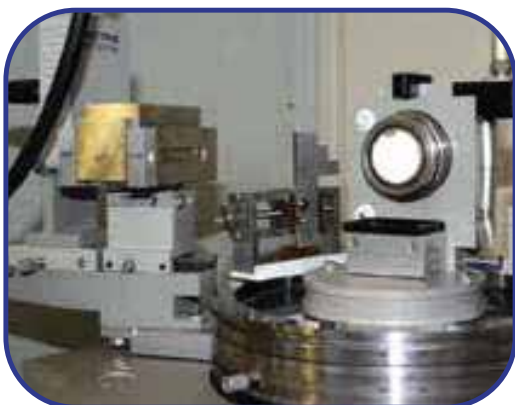


►► Basic configuration

- Protective cabinet
- Two-circle goniometer
- High voltage power supply
- Sealed X-ray tube in a protective housing
- Electronic control unit
- Scintillation NaI (TI) detector
- Sample holder with rotation
- Collimation system
- Beta-filter for Cu-radiation
- Standard powder sample of quartz
- DataCol software for control and data collection
- Accessories and spare parts

►► **Advance Option :**

- X-ray registration system base on linear position –sensitive stripped detector.
- High-temperature oven –chamber (uo to 1200°C)
- One-dimensional parabolic mirror for parallel beam geometry
- Attachment for texture and stress analyses, and for determination of crystal orientation
- Peltier-cooled energy-dispersive solid state Si (Li) detector
- Unear position-sensitive stripped detector
- Flexible monochromator holders for primary and diffracted beams
- Crystals-monochromators of different types
- Rigid holder for bulk samples
- Holder for Cylindrical samples (capillaries)
- Housing for foreign sealed X-ray tubes
- Sealed X-ray tubes with various focus sizes and target materials
- β -fihers for different radiations.
- Closed cooling systems for X-ray tube
- Sample carriers (cuvetts)



►► X-Ray Diffractometer Specifications:

► Crystal Theta/Theta Version consists of the following :-

- Goniometer, 2 independent axes, radius 180-250mm, 0.002 deg minimum step size, <0.0001 deg resolution. Range -4 to $+155^{\circ}2\theta$.
- 3 kW X-ray Generator, 60kV, high frequency, air cooled, stability 0.005% for full rated mains variation, ripple 0.03% to 0.75%. Temp. coeff. 50ppm/deg. C.
- Detector arm with a curved graphite monochromator and Xe proportional detector Part No. 95-0655-00.
- Tube Shield with shutter under software control.
- XRD tube (Cu) and HT cable. Water is needed for tube cooling only and requirement is 4 litre/min at $15 - 20^{\circ}\text{C}$.
- Cabinets are in vertical configuration 1100mm wide x 700mm deep x 900mm high. The beam-path is surrounded by 2mm steel and 12mm Pb-Acrylic (0.5mm Pb-equivalent). Elsewhere 2mm aluminium is used for reduced weight and portability.
- An optional floor-standing cabinet is available (not included).
- An integrated Fail-Safe X-rays-on warning lamp is included.
- Difftech 122 microprocessor controller with counting electronics is included. Scan speeds 0.14 deg/min to 60 deg/min. With Multi-pass Averaging, scan speeds 1000 x slower. Slew speed 300 deg/min.
- Software – Visual XRD and Tracesv6 included – 32 bit Software for Microsoft Windows operating system

►► Visual XRD Software Specifications :

- 32 bit application for operation of the crystal and collection of data files for analysis by Tracesv6 or other applications.
- Simple routine operation enter Start, End angles, Step size, Scan speed, Comment and click start button.
- File Save and recall Parameter sets.
- Software configuration for user Folder, Screen options.
- Hardware configuration for Tube Anode selection and Comms Protocol.
- Accessory configuration to select interchangeable options, Source, Optic, Stage, Detector, which each have their own Calibration angles.
- Manual control for computer-aided alignment, move axes anywhere, load sample open/close shutter, start/stop spinner – depending on options installed.
- Pulse Height Analysis used with Xe proportional detector, does a PHA scan, set Lower and upper discriminator, Amp. Gain, Detector HV.
- Data collection modes – Single pass, Multi pass, multi range, Theta/2Theta, Theta only, 2Theta only, Continuous scan, Residual Stress.

►► X-Ray Diffractometer Specifications:

Attributes

X-ray equipment (XRD)

Model Name of the XRD

Dimensions of the system

Size (LxBxH) in cm

Total weight of the system

Details of x-ray tube

Whether the X-ray tube is complying with

CE/equivalent requirements

Maximum rating (kV)

Maximum operating (kV)

Maximum rating (mA)

Maximum operating (mA)

Number of focal spots

Size of focal spots

Inherent filtration (equivalent of Al in mm)

Total filtration (equivalent of Al in mm)

Details of x-ray generator

Whether the X-ray generator is complying with

CE/equivalent requirements

Maximum rating (kV)

Maximum operating (kV)

Maximum rating (mA)

Maximum operating (mA)

Beam limiting device

Number of collimators

Collimator sizes (diameter in cm)

Size (s) of the radiation beam at the object in cm

Any other, please specify

Output (radiation exposure at 1 m) in terms of mR/h

Beam divergence in degrees

Shielding details

Shielding material used

Thickness of shielding material

Whether lead glass is available

Lead equivalence thickness of the lead glass in cm

Additional information on shielding

Information/Data/Values

Analytical XRD 3500i

135 x 120 x 230 cm³

800 kg

not comply / comply

60 / 80

40 / 40

40 / 60

30 / 40

4 / 4

0.4 x 8 / 0.4 x 12 mm² (linear)

not applicable

not applicable

comply

60

50

80

40

2 collimating systems - primary and diffracted beams
equatorial and axial slits with various widths

depends on slit width

less 1 mSv/hour at 10 cm

Soller slits with divergency of 1.5 and 2.5 degrees

Steel with Pb case inside

3 mm of steel

yes

2.5 mm

Safety Features

Power key	yes
Requirement of pass word for operation of the XRF	no
X-ray on indicator	Yes
X-ray caution symbols	yes
Interlock 1 location	
Interlock 2 location	
If more number of interlocks, please give details	
Emergency stop 1 location	case side
Emergency stop 2 location	case side
If more number of emergency stop switches, please give details	
Maximum surface leakage radiation level in microSv/h(on the cabinet)	1
Maximum possible duration of radiation exposure of a single analysis	not applicable

Certification Details

Name of the approving authority

Radiation survey meter details

Radiation survey meter details used by the manufacturer of the XRD

whether the survey meter can measure background radiation levels (from about 0.05 microSv/h)
 whether the survey meter can be useful to measure the leakage radiation levels of the XIS (from about 15 keV onwards)

Radiation survey meter details available with the supplier

whether the survey meter can measure background radiation levels (from about 0.05 microSv/h)
 whether the survey meter can be useful for the radiation energy of the system (from about 15 keV onwards)

Alternative according to customer specification

►► Tracesv6 Software Specifications :

- Traces V6.7: 32 bit XRD Scan Processing for Microsoft WindowsTM operating system Process scans from Diffraction Technology, Siemens, Philips and Rigaku systems.
- Tool buttons with tool tips & menus make the software very user-friendly.
- Zooming, scrolling and on-screen graphical peak labelling.
- 16 million colours with graphical selection.
- Work with up to 50 scans on screen at once.
- 3D Graphics – perspective, trend lines, surface, tape, area, rotation, colour, printing.
- Attribute-based file finder for multi user environments.
- Automatic and manual background fit & strip (fitting cubic or linear functions) Save scans in a number of formats, or cut and paste to other applications.
- Automatic peak search and edit Scan manipulation , add, subtract, trim, and spike removal Smoothing, cubic, with no loss of high frequency data K α 2 stripping.
- Peak area, Peak area based quantitation.
- Logarithmic vertical scale, toggle on/off.
- Peak FWHM determined graphically.
- Particle Size by Scherrer method.
- Work with PDF-4, Search with logical operators between parameters.
- Retrieval of PDF1, 2 and 4 records displayed as line markers on the screen.
- Print preview mode with 2D and 3D scan display. Up to 50scans in Isometric mode with hidden-line removal for best presentation.
- Print PDF Cards from PDF-2 and PDF-4.
- Line widths and line-styles selectable.
- Powder Pattern Generator with user data or ICDD data Peak fitting and deconvolution – large no. of peaks, Least Squares or Genetic algorithm. Full Windows HELP system and manual included Main screen offsets for multiple scan display.
- Printing – allows PDF-stick figures and labels on isometric display.
- Common functions accessed by right mouse button click Angled label text for clearer presentation.
- Retained Austenite coupled with Vis XRD data collection.

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

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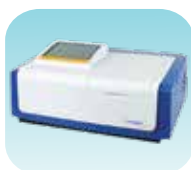
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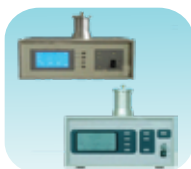
Atomic Absorption
Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



HEMA 2062
Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
Carbon 3800



Fully Automated
CLIA



NOVA-2100
Chemistry Analyzer



PCR/Gradient PCR/
RTPCR



TOC
Analyzer



Laser Particle
Size Analyzer



Ion Chromatograph



Water purification
system

►► Regulatory compliances



►► Corporate Social Responsibility

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Analytical Foundation

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►► Reach us @



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