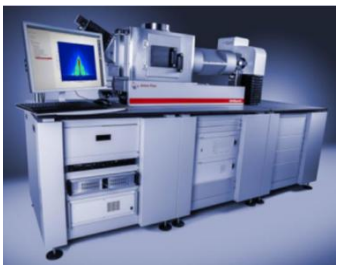
HighTech Pakistan CATALOGUE

Much Affordable Prices



SAXPoint
Small Angle, Wide Angle, Grazing Incidence X-ray Scattering – All in One
See details at page 4

Anton Paar, Austria

SAXSpace
Small and Wide-Angle X-ray Scattering – Modular System
See details at page 6

Anton Paar, Austria

RheoOptics
Rheo-SANS/SAXS
Small-Angle Neutron or X-ray Scattering
See details at page 8

Nano Indenter (03 Models)
Manufactured by Nanomechanices
See details at page 11

Acoustic Scanning Microscope
Manufactured by KSI
See details at page 14

Radon Detector - RAD7
Manufactured by DURRIDGE
See details at page 24

HighTech Pakistan *Producing and Promoting Innovative Technologies*

X-ray diffractometer (PERSEE) Manufactured by PGinstruments

European Standard Technology in Much Affordable Price with 05 Years Service Warranty Including Parts

Applications

- Qualitative and Quantitative Phase Analysis of Inorganic & Organic Materials, Minerals, Forensic, Clays, Pharmaceuticals, Polymers, Rocks, Polycrystalline & Amorphous samples etc.
- Determination of Grain Size, Crystallinity Factor, Stress, Texture (Preferred Orientation of Grains)
- Determination of Cell Parameters, Crystal Structure, Structure Refinement and Indexing
- Determination of Ratio of Compounds in All Kind of Materials

Standard Configuration (Hardware)

Main Unit comprises of Θ_s-Θ_d Vertical Goniometer, X-ray Tube stand, X-ray Tube (2.4 KW, Line/Point focus changeover option), Graphite Curved Crystal Monochromator, Soller Slit, Divergence Slit, Scattering Slit, Receiving Slit, Ni Filter, Zero Slit, Fixed Sample Platform, Filter, High Voltage Generator (4KW) , High Voltage Generator Controller, Pulse Height Analyzer, Scintillation Counter, Sample Holder Through Hole, Sample Preparation Kit, High Voltage Cable (2M), Agate Bowl, XD-3 Control Software, Analysis Software CW-2F, Closed Circuit Cooling Systems (One Inside and One Outside the Laboratory), Punch Machine, Fan etc.

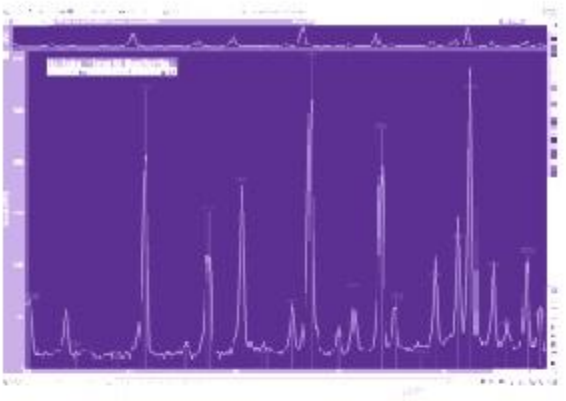
Standard Configuration (Software)

- Search Match Software with latest database
- Reitveld Refinement Software
- Peak Search, Kα1 & Kα2 Separation, Crystallite Size, Intensity Ratio I/I_o, Integrated Intensity, Peak Width at Half Maximum, Smoothing, Peak Stripping, Baseline
- Latest Branded PC Intel Core i7, 4GB RAM, 500GB HD, 20" or 22" LCD Monitor, LaserJet Color Printer, OS Windows 7
- Free Training for 02 Persons for 02 Weeks at Manufacturer's Site
- Five or Ten years extended service warranty including parts. (Optional)

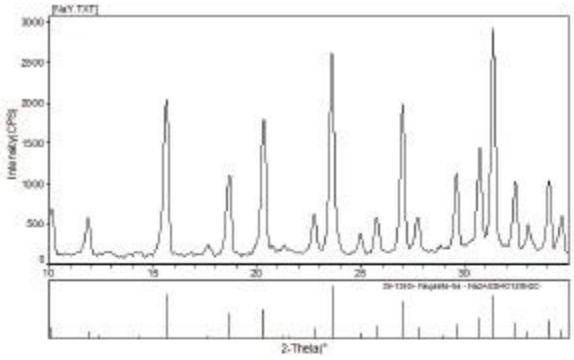
Following parts are standard supplies with PERSEE while other companies charge extra price

- Graphite Curved Crystal Monochromator
- Closed Circuit Cooling System
- Agate Bowl
- Punch Machine (for pressing powder sample)
- Search Match Software with latest Database
- Reitveld Refinement Software

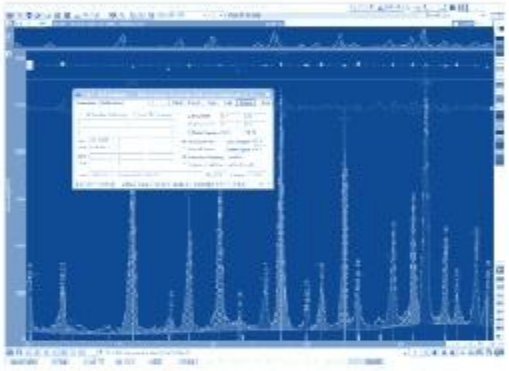
Data Analysis using PERSEE (Molecular sieves & Batteries)



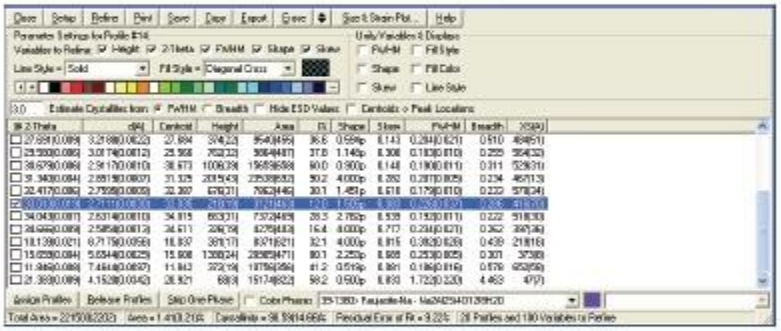
Qualitative analysis



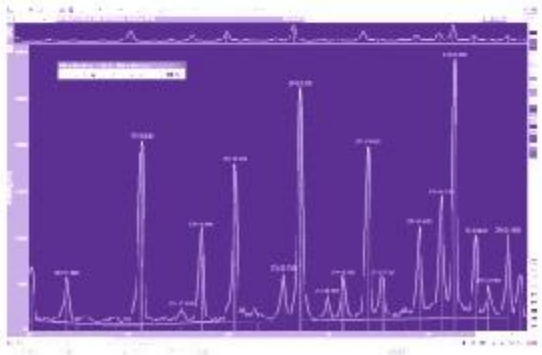
Qualitative analysis



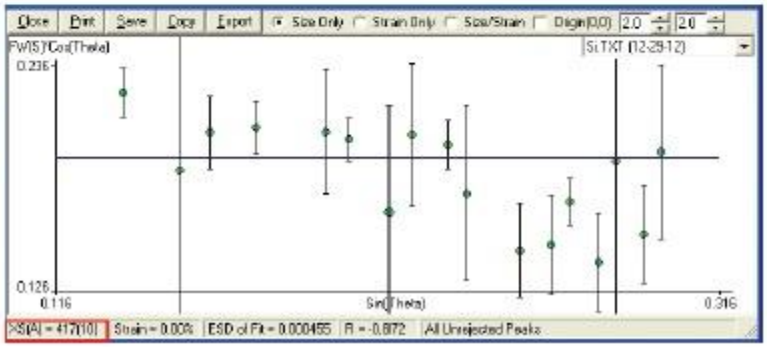
Cell parameters



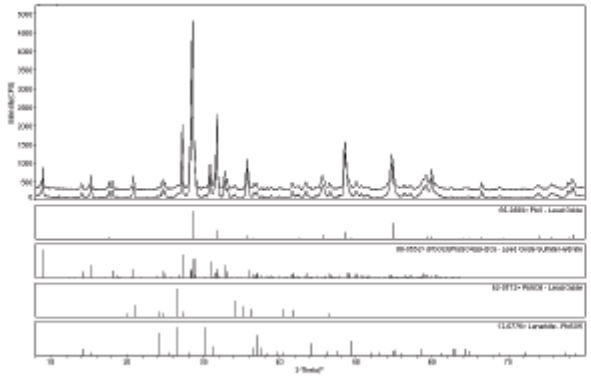
Crystallinity



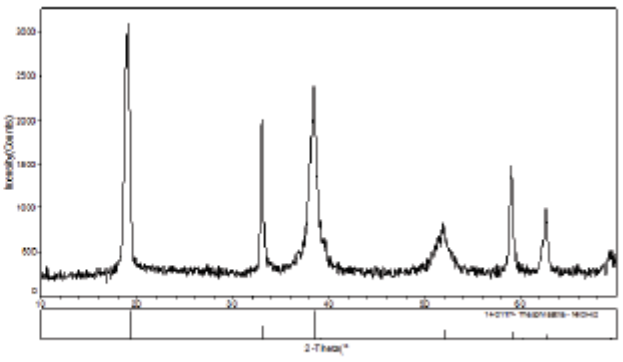
Peak search



Grain size



Qualitative analysis (lead battery)



Qualitative analysis (NI-MH battery)

Specifications of PERSEE

Item	XD-2	XD-3	XD-6
X-ray Tube			
Type	Cu Target,NF Model		
Focus Dimensions		1.0×10mm^2	
Maximum Power		2 KW	
X-ray Generator			
Maximum Power	3 KW		4 KW
X-ray Tube Voltage	15kV ～ 60kV		
Tube Voltage Step Width		1kV	
X-ray Tube Current	6mA ～ 50mA	6mA ～ 80mA	
Tube Current Step Width		1mA	
Tube Voltage,Tube Current Stability	≤0.01%（Supply Voltage Fluctuations 10%）		
Alarm Device	kV Low, kV Over Top, mA Overload, Water Discharge, Temperature		
Ray Power Protection	0.35kW, 0.7kW, 1.0kW, 1.5kW, 2.0kW, 2.7kW Six Grade		
Goniometer			
Goniometer Type	Vertical(θ-2θ)	Vertical(θ-θ)	
Scanning Radius	180mm	150mm ～ 285mm Continuously Adjustable	
Scanning Mode	θ-2θ Linkage Or θ,2θ Single Move	θ_s-θ_d Linkage Or θ_s,θ_d Single Move	
Measurement Range	－182° ～ 182°(θ) －30° ～ 160°(2θ)	－30° ～ 80°(θ_s) －30° ～ 160°(θ_d)	
Maximum Speed	120°/min		1800°/min
Operation Mode	Continuous Scanning ,Timing Step Scanning, Constant Step Scanning		
Continuous Scanning Speed	0.125°/min ～ 120°/min		
Angle Repeatability	≤0.0006°		≤0.0005°
Measurement Accuracy	0.001°		≤0.001°
Minimum Step Size	0.00025°		0.0001°
Divergence Slit(DS)	1/6°, 0.5°, 1°, 2°		
Anti-scattering Slit(SS)		0.5°, 1°, 2°	
Receiving Slit(RS)	0.1mm, 0.15mm, 0.3mm, 0.45mm, 0.6mm, 1mm, 2 mm		
Zero Dedicated Slit		0.02mm	
Detector·Counter			
The Type Of Detector	Scintillator Counter		
Crystal Type		NaI	
Pulse-height Analyzer(PHA)	Output High Voltage 0V ～ 1000V Stability ≤0.01%(8h)		
Machine Cabinet			
Cabinet Size(mm)	1200(L)×800(W)×1850(H)		
Machine Weight(kg)		500	
Observation Window	600(L)×400(W)×10(T) Lead Glass		
X-ray Leakage	≤0.1μ Sv/h (Non Deduction Natural Background)		
Safety Precautions	Door Interlock Protection(The door to a designated location, light gates open only to produce X-ray)		
Filter			
Ni Filter	Corresponding Cu Target		
Integrated Whole Stability		≤0.3%	

Automatic temperature control of circulating water cooling device (indoor unit +outdoor unit)

	Model	CW-2F
Cooling Power(W)		4000
Power Supply		220V,50Hz
Input Power(W)		1800
The Largest Dimensions(mm)	Indoor Unit	600(L)×400(W)×960(H)
	Outdoor Unit	
Weight(kg)	Indoor Unit	50
	Outdoor Unit	
Noise(dB)	Indoor Unit	≤55
	Outdoor Unit	≤65
Cooling Water Pressure(Mpa)		0 ～ 0.7
Coolling Water Flow(L/min)		≥3.5
Ambient Temperature		5℃～ 40℃
Temperature Control Range		－49℃～ 50℃
Temperature Control Accuracy		±1℃
Warning Device		Temperature，Water Shortage

Small Angle cum Wide Angle Compact XRD Systems

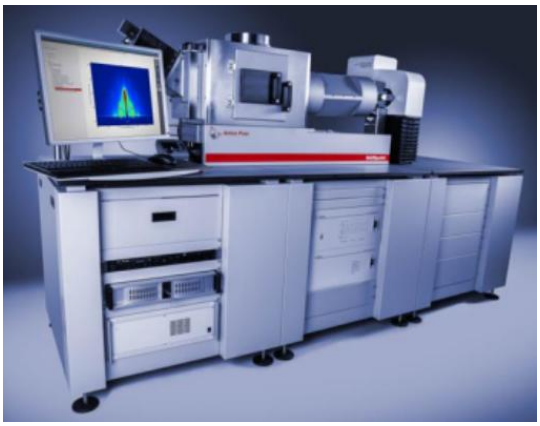
(03 Models) Manufactured by Anton Paar

All brochures are available at www.hightechpakistan.com

SAXSpoint

Compact Laboratory SAXS/WAXS/GISAXS system

SAXSpoint is the new compact laboratory SAXS/WAXS/GISAXS system for analysis of nanostructured materials. It determines the size, size distribution and shape of nano-sized domains. SAXSpoint is especially suited for analysis of anisotropic materials and nanostructured surfaces. SAXSpoint employs brilliant X-rays with high spectral purity and scatterless beam collimation. Combined with the latest hybrid photon-counting (HPC) detectors it ensures short measurement time and high-quality SAXS/WAXS/GISAXS results for the perfect analysis of your nanostructured materials.



Benefit from SAXSpoint's large variety of innovative and versatile sample stages which cover many SAXS/WAXS/GISAXS applications. SAXSpoint is your innovative and reliable partner for your daily nano research of polymers, liquid crystals, nanoparticles and nanostructured surfaces.
Key Features

A compact SAXS/WAXS/GISAXS genius

- Excellent resolution and SAXS/WAXS/GISAXS data quality in a short measurement time
- Brilliant X-ray beam with high spectral purity
- Scatterless beam collimation and the latest hybrid photon-counting (HPC) detector technology
- Versatile sample stages for covering many SAXS/WAXS/GISAXS applications
- Innovative design and spacious sample chamber to meet all your experimental needs

Brilliant features for all needs

- Compact system size – ensuring the best data quality in a short time
- TrueSWAXS – simultaneous small- and wide- angle scattering measurements at scattering angles up to 74° 2Θ
- Auto-detection of configuration and sample stages

Full experimental flexibility

- Dedicated point-collimation system with a highly-brilliant X-ray beam specifically suited for analysis of anisotropic samples and nanostructured surfaces
- Optional fully integrated dual microsource with easy switch over between Cu and Mo radiation for covering various SAXS applications
- Optional high-performance set up with fully integrated Ga MetalJet source by Excillum
- Versatile sample environment for any applications, including GISAXS studies, SWAXS measurements under controlled temperature, humidity, tensile stress, pressure, etc.
- High-throughput screening of liquid and solid nanostructured samples

Powerful control and data analysis software

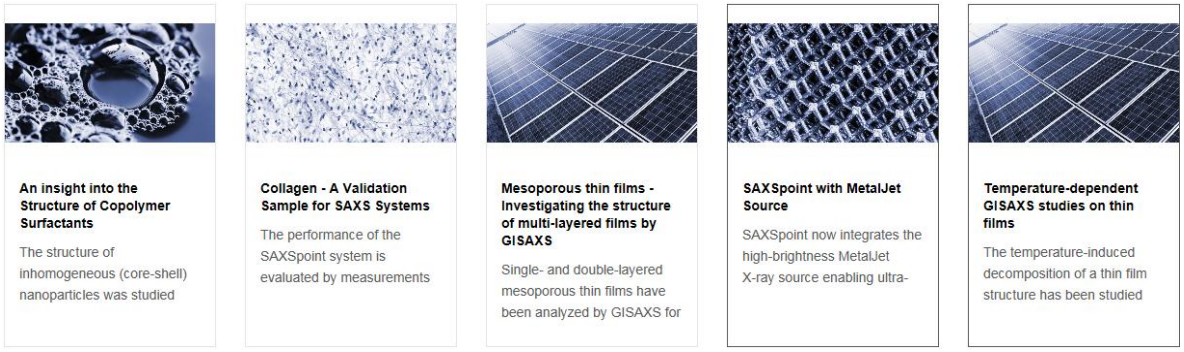
- SAXSdrive™ – full system control for automated SWAXS experiments
- SAXSquant™ – simple and fast data processing using customizable templates
- Versatile software for advanced SAXS data interpretation

Technical Specifications

X-ray source	Microfocus X-ray source (Cu, Mo), optional dual source, Optional MetalJet source
X-ray optics and collimation	Custom-designed optics (fully evacuated), Advanced scatterless beam collimation (fully evacuated)
Sample stages/ Autosamplers	• TCStage temperature-controlled stages • GISAXS stage with heating option • Tensile Stage with heating/cooling option • Humidity Stage • Autosamplers for multiple solid and liquid samples • Customized stages on request
Special features	TrueFocus: self-alignment with X-ray beam TrueSWAXS: simultaneous SWAXS studies up to 74° 2Θ StageMaster: XYZ stage with auto-recognition of sample stages
Temperature range Atmosphere	-150 °C ... +500 °C, ± 0.1 °C Vacuum, air, inert gas, humidity (reactive gases on request)

Sample holders	• Quartz capillary for liquids • Sample holder for solids • PasteCell for viscous and powder samples • RotorCell for sample spinning • High-pressure cells • µ-Cell for small sample volumes • FlowCell/TubeCell for automation
Measurement time	< 1 minute to 30 minutes (typical)
Accessible q-range	0.025 nm^{-1} to 49.0 nm^{-1} 200 nm > d > 0.13 nm
Software	SAXSdrive measurement and acquisition software SAXSquant data processing and analysis software Advanced data interpretation software (PCG)
Dimensions (footprint)	1.8 m x 0.9 m (L x D)

Applications



Accessories

Following brochures are available for download at www.hightechpakistan.com

1. D21IP011EN-B SAXSpoint
2. D21IA020EN-D ApplFlash GISAXS Layered system
3. D21IA021EN-A Collagen - A validation sample for SAXS
4. D21IA023EN-A ApplFlash Surfactants
5. D21IA025EN-A AppFlash SAXSpoint and Metaljet
6. D21IA026EN-A ApplFlash Temperature dependent GISAXS
7. D21IE023EN-A ProdInfo SAXSpoint Product Information Sheet
8. D21IE031EN-A ProdInfo SAXSpoint MetalJet Product Information Sheet
9. D21IP005EN-A GI-SAXS surface analysis
10. D21IP008EN-B SAXS SampleStages
11. D21IP012EN-A SAXSpoint Metaljet

SAXSpace

Modular SAXS/WAXS system

The SAXSpace small- and wide-angle X-ray scattering (SWAXS) system is used for characterizing your nanostructured materials and samples. It determines the size, size distribution and shape of nano-sized particles and sample domains and is especially suited for analyzing isotropic, colloidal and biological samples (Bio-SAXS). SAXSpace offers a variety of versatile and precise sample stages which cover all your SAXS applications. The system provides automatic alignment and easy handling for smooth operation. SAXSpace's robust design, high system uptime and short measurement time ensure a large sample throughput and high-quality SAXS/WAXS results.

This makes SAXSpace an ideal tool for investigating nanostructures in many different materials, including nanoparticles, proteins, foods, pharmaceuticals, polymers and surfactants.

Key Features

A small genius

- Easiest operation, including auto-detection of sample stages and push-button alignment
- Scatterless beam collimation concept for high resolution
- High X-ray beam flux and signal-to-noise ratio ensuring fast measurements and excellent SWAXS data quality

Outstanding features for all your needs

- TrueFocus – simple and time-saving alignment at the push of a button
- TrueSWAXS – simultaneous small- and wide-angle scattering measurements at scattering angles up to 74° 2Θ
- SmartSAXS – dual beam concept with multiple beam line option for limitless experimental possibilities and high sample throughput
- Small footprint – all system components are integrated in one compact platform

Full experimental flexibility

- StageMaster – precise XYZ stage with auto-detection of sample stages
- Optimized design for weakly scattering and low-concentrated samples, such as biomaterials
- High-throughput screening of liquid and solid nanostructured samples
- Versatile sample stages and holders for any applications, including temperature-dependent SWAXS measurements and studies under controlled humidity

Powerful control and data analysis software

- SAXSdrive™ – full system control for automated SWAXS experiments
- SAXSquant™ – simple and fast data processing using customizable templates
- Versatile software for advanced SAXS data interpretation

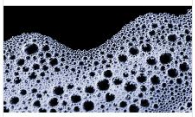
Technical Specifications

X-ray source	Sealed tube (line and/or point collimation), Microsource
X-ray optics	Multilayer optics Advanced Kratky-based line and point collimator
Sample stages / Autosamplers	• TCStages • Humidity Stage • Tensile Stage • GI-SAXS Stage • ASX Autosamplers • VarioStage • Customized stages on request
Special features	SmartSAXS: dual beam concept, multiple beam line option TrueFocus: self-alignment with X-ray beam TrueSWAXS: simultaneous SWAXS studies up to 74° 2Θ StageMaster: XYZ stage with auto-recognition of sample stages
System resolution	q_{min}: 0.03 nm^{-1}
Sample environment - Temperature range - Atmosphere	-150 °C to 300 °C Vacuum, air, inert gas, humidity (reactive gases on request)
X-ray optics	Multilayer optics Advanced Kratky-based line and point collimator
Sample holders	• Quartz capillary for liquids • Sample holder for solids • µ-Cell • Flow Cell • Paste Cell • Rotor Cell • Tube Cell • Capillary holder
Measurement time	<1 minute to 30 minutes (typical)
Accessible q range	0.03 nm^{-1} to 49.0 nm^{-1} 200 nm > d > 0.13 nm
Software	SAXSdrive™ control and data acquisition software SAXSquant™ data analysis software Advanced data interpretation software (PCG)
Dimensions (footprint)	1.8 m x 0.9 m (L x D)

Applications

An insight into the Structure of Copolymer Surfactants

The structure of inhomogeneous (core-shell) nanoparticles was studied

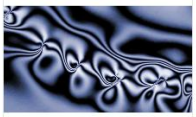


An Insight into the Structure of Surfactants

The structure of inhomogeneous (core-shell) nanoparticles was studied

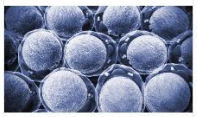
Coir fibers - SWAXS studies of structural changes induced by tensile stress

Microfibril angle in coir fibers during tensile straining was studied using the SAXSpace



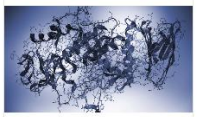
Desmearing of Line-smeared Scattering Curves

Small Angle X-Ray Scattering instruments use two different beam geometries - point



Fast SAXS Measurements of a Diluted Protein Solution

A 1% Lysozyme solution was measured with the SAXSpace system. Structural information



Fast SAXS studies of sensitive biological samples

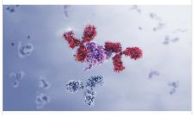
Small-angle X-ray scattering (SAXS) measurements of low-concentrated and

Fast Structure Analysis of Pharmaceutical Excipients by SWAXS for Product Quality Control

The nanostructure of pharmaceutical excipients used as taste masking agents

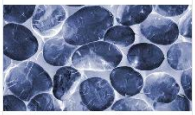
Grazing-Incidence Diffraction Studies on Pentacene Thin Films

50 nm thin Pentacene films were analyzed with the SAXSpace system to



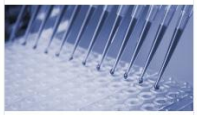
Integration of SAXS and NMR for structure determination of biomolecules

The combined results from small-angle X-ray scattering and NMR spectroscopy



Protein Mass Determination using Small Angle X-Ray Scattering

The molecular weight of Glucose Isomerase was determined with the



Protein Shape Determination by Small Angle X-Ray Scattering

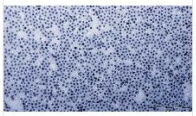
The 3-dimensional shape of Glucose Isomerase in solution was studied with the

Quality control of pharmaceutical excipients during storage and processing

The structure of pharmaceutical excipients as a function of storage time and

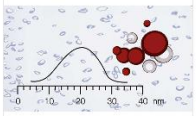
Quantum dots - Size determination by SAXS

A dispersion of nanosized CdSe quantum dots was analyzed with the SAXSpace



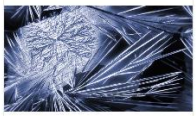
Rapid Size Determination of CdSe Quantum Dots Synthesized by Microwave Irradiation

The particle size of CdSe quantum dots, synthesized by using the Monowave 300



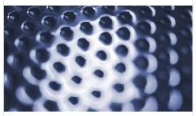
Size and Size Distribution of Gold Nanoparticles by SAXS

Gold nanoparticle dispersions were measured with the SAXSpace system. SAXS



Small Angle X-Ray Scattering with Microcrystalline Materials

SAXS is routinely used for the characterization of liquid crystalline phases. If the

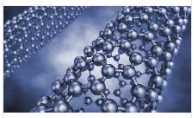


Structural Characterization of a Mesoporous Material

A mesoporous material was studied with the SAXSpace system. Important structural

Structure Determination of Interacting Sample Systems

Evaluation of interacting (charged or concentrated) particles requires the



Studying the Internal Structure of Carbon Nanotubes with SAXS

A polymer/multi-walled carbon nanotubes composite was measured with the SAXSpace

Studying the Internal Structure of Lamellar Systems

The SAXSpace system was used to characterize nano-structured lamellae present in

Tracking the Phase Transitions of Phase-changing Materials

Small- and wide-angle X-ray scattering allows to track the phase transition of phase-

All brochures are available for download at www.hightechpakistan.com

Accessories

ASX Autosamplers

GISAXS Stage

Humidity Stage

TC Stage Temperature-Controlled Sample Stages

Tensile Stage

Vario Stage

Following brochures for SAXSpace are available at www.hightechpakistan.com for download

1. Solutions for Nanotechnology
2. An Insight Into The Structure Of Surfactants
3. Coir Fibers Swaxs Studies Of Structural Changes Induced By Tensile Stress
4. D21IA002EN-A Applflash Quality Control Excipients Storage Processing
5. D21IA015EN Applflash Measuring Microcrystalline Samples - Rotor Cell
6. D21IA017EN-A Applflash Integration Of SAXS And NMR For Structure Determination of Biomolecules
7. D21IA018EN-A Applflash Grazing Incidence Diffraction on Pentacene Thin Films
8. D21IA019EN A Applflash Tracking The Phase Transitions of Phase-Changing Materials
9. D21IA022EN-A Applflash SAXS Studies Of Biological Samples Using Line-Collimation
10. D21IA023EN-A Applflash Surfactants
11. D21IP007EN-A SAXS Analysis In Structural Biology
12. D21IP008EN-B SAXS Sample stages
13. Desmearing of Line Smeared Scattering Curves
14. Fast Saxs Measurements of a Diluted Protein Solution
15. Fast Structure Analysis of Pharmaceutical Excipients by Swaxs for Product Quality Control
16. Measurement Solutions for Nanomaterials Applications
17. Protein Mass Determination Using Small Angle X Ray Scattering
18. Protein Shape Determination by Small Angle X Ray Scattering
19. Quantum Dots Size Determination by Saxs
20. Rapid Size Determination of Cdse Quantum Dots Synthesized By Microwave Irradiation
21. Size and Size Distribution Of Gold Nanoparticles by Saxs
22. Structural Characterization of A Mesoporous Material
23. Structure Determination of Interacting Sample Systems
24. Studying the Internal Structure of Carbon Nanotubes With Saxs
25. Studying the Internal Structure of Lamellar Systems
26. XPAIP023EN-B Complete Control in the Pharmaceutical Industry

RheoOptics - Rheo-SANS/SAXS

Small-Angle Neutron or X-ray Scattering

Synchrotron beam lines have been growing in numbers during recent years due to the increasing interest in nanotechnology. Apart from static nanostructure analysis, a further area of interest for material research is the influence of shear. The convection-temperature-controlled Rheo-SANS/SAXS system enables the combination of SANS and rheological measurements in concentric cylinder and parallel plate systems, measurements of solid samples, as well as extensional rheometry at temperatures up to 200 ° C.

Key Features

- Convection heating system for temperatures up to 200 °C allowing X-ray scattering (SAXS/WAXS) or neutron scattering measurements (SANS) simultaneous to rheology
- Evaporation unit for low temperature measurements down to -50 °C
- For X-ray (SAXS/WAXS) measurements: system optionally equipped with polycarbonate parts
- For neutron scattering (SANS) measurements: system optionally equipped with quartz or titanium parts
- Available measuring systems: Parallel plate, cone-plate, concentric cylinder, solid fixtures, SER and UXF
- Synchrotron beam required
- Beam line and detector not included in delivery

Following brochure is available for download at www.hightechpakistan.com

1. C92IP005EN-F screen

Attachments and stages for X-ray diffractometers of Any Make or Model

(13 Types) Manufactured by Anton Paar

All brochures are available at www.hightechpakistan.com

Benchtop Heating Stages: BTS 150 | BTS 500

The BTS 150 and BTS 500 Benchtop Heating Stages are the first commercial non-ambient stages for XRD studies on benchtop diffractometers. Their unique design is patented and offers all the features a benchtop diffraction application requires - compactness, reliability and ease of use!

Measurements can be performed between –10 °C and 150 °C with the BTS 150 and from ambient to 500 °C with the BTS 500. Both instruments are extremely compact in design to fit into the restricted space of typical benchtop diffractometers.

Capillary Extension: HTK 1200N

The HTK 1200N Capillary Extension is the first “two-in-one” setup for combined reflection and transmission **XRD studies at high temperatures** up to 1200 °C. It turns the HTK 1200N **high temperature chamber** into a high-end **capillary heater** for transmission XRD. Benefits include high-temperature homogeneity and excellent temperature control combined with easy capillary handling. It takes only a few minutes for you to convert from the flat sample to the capillary setup, giving you the possibility to choose the optimum beam geometry for every sample.

Cryo & Humidity Chamber: CHC plus^{+}

CHC plus^{+} is a unique combination of the multi-purpose CHC Cryo & Humidity Chamber and an advanced humidity (RH) generator for the analysis of humidity-dependent and/or temperature-dependent structural changes in materials using **X-ray diffraction**. Investigations into pharmaceuticals, fine chemicals, clays or zeolites can be carried out in humid gas, air, inert gas or vacuum. Controlled humidity is possible for sample temperatures from 10 °C to 80 °C.Due to its versatility, the new combined CHC plus^{+} setup opens new dimensions in analysis for materials science and is a true "workhorse" for the pharmaceutical industry.

Domed Cooling Stage for Four-Circle Goniometers: DCS 350

The **DCS 350** Domed Cooling Stage is the smallest attachment for in-situ X-ray diffraction studies at low and high temperatures on **four-circle goniometers** and **XYZ stages**. With a temperature range from -100 °C to +350 °C and a theta angle from almost 0° to 90° 2Θ for all Φangles, **DCS 350** is the ideal sample stage for in-situ studies of layered structures and for investigating phase transformations and stress in crystalline material.

Domed Hot Stage for Four-Circle Goniometers: DHS 1100

DHS 1100 is a **heating attachment** which is a further development of the well-established DHS 900 Domed Hot Stage. It has an increased temperature range of 25 to 1100 °C. **DHS 1100** is small and lightweight and can be mounted on almost all common **four-circle goniometers** and many **XYZ stages**. Under its innovative graphite dome, samples can be measured in vacuum, air and various other gases. **DHS 1100** is an excellent sample stage for in-situ high-temperature studies of phase transformations, texture, and internal stress in crystalline materials.

High-Pressure Chamber: HPC 900

HPC 900 is a unique **high-pressure and high-temperature chamber** for **in-situ X-ray diffraction** studies of gas-solid interactions. HPC 900 can be pressurized with hydrogen and many other gases up to **100 bar** while heating the sample up to
900 °C. A furnace heater provides uniform sample heating and excellent temperature control. Despite the extreme operating conditions, the sample can be exchanged easily without any tools. HPC 900 opens up completely new possibilities in hydrogen energy research and catalyst development.

High-Temperature Oven Chamber: HTK 1200N

The HTK 1200N is an advanced **high-temperature chamber** with a robust design for **in-situ X-ray diffraction** studies in different atmospheres up to 1200 °C. Its environmental heater guarantees excellent uniformity of the sample temperature. Use the HTK 1200N for different types of in-situ X-ray investigations, including studies of phase transformations, structure determination, and studies of chemical reactions.

High-Temperature Strip Heater Chambers: HTK 16N | HTK 2000N

The HTK 16N and HTK 2000N **high temperature chambers** are well-proven instruments for **in-situ X-ray diffraction studies** up to 1600 °C and 2300 °C, respectively. The sample is directly heated with a heating filament. The design of HTK 16N and HTK 2000N allows you to work at high temperatures in different atmospheres. The instruments are made of high-quality materials which guarantee a long working life.

Low-Temperature Chamber: TTK 600

The **TTK 600 Low-Temperature Chamber** is a non-ambient attachment for powder X-ray diffraction studies from -190°C to 600°C. Different sample holders allow investigating samples in reflection and transmission geometry. Samples can be measured in vacunum, air or inert gases. An antechamber option allows safe transfer of air-sensitive samples into the TTK 600.

The TTK 600 fits to all common powder diffractometers and is the instrument of choice for X-ray structure analysis of various sample types at low and medium temperatures.

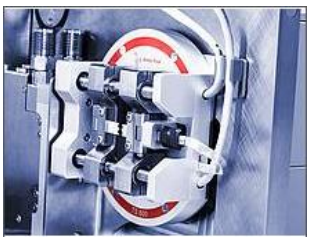
Multi-Sample Humidity Chamber: MHC-trans

The MHC-trans Multi-sample Humidity Chamber is a unique XRD sample stage for accurate control of sample temperature and humidity with an integrated sample changer for 8 samples. Compared to traditional sample stages for one sample only, the simultaneous conditioning of several samples significantly speeds up investigations on crystal structure changes induced by humidity and temperature. The possibility for transmission XRD makes MHC-trans ideal for in-situ X-ray diffraction studies of pharmaceuticals and other organic materials.

PC-controllable Alignment Stage

The PC-controllable Alignment Stage is a motorized z-alignment stage for all Anton Paar non-ambient attachments for powder **X-ray diffraction**. It can either be fully integrated in the diffractometer control software or operated with a separate program from Anton Paar. This program includes automatic compensation of the sample holder expansion, which means you can run fully automated temperature profiles without sample displacement.

Reactor Chamber: XRK 900



The XRK 900 **reactor chamber** is the only heating chamber on the market specifically designed for **X-ray diffraction** experiments for studies of solid state and solid state-gas reactions up to 900 °C and 10 bar. It is a unique tool for **in-situ X-ray diffraction** investigations - unmatched in robustness and performance.

Tensile Stage: TS 600

The TS 600 Tensile Stage is a completely new, advanced sample stage for in-situ X-ray diffraction studies of stress/strain phenomena in fibers, foils and thin films. It is the first commercial sample stage specifically designed for in-situ XRD investigations of structural changes in materials under mechanical load. Because of its compactness and low weight, the instrument can be used on synchotrons as well as on laboratory X-ray diffractometers. And what's more, it can be operated in transmission and reflection mode to gain new insights into the world of strain and stress.

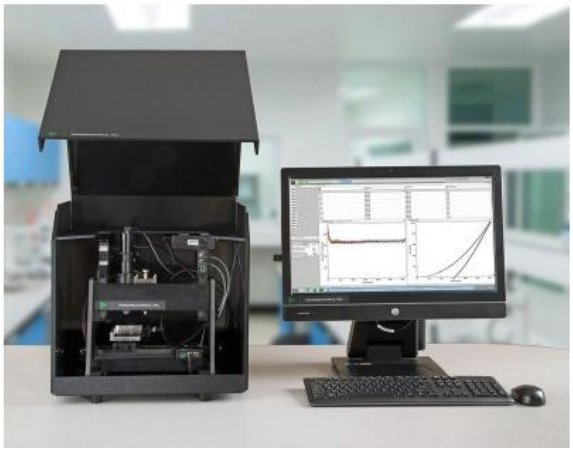
All brochures are available for download at www.hightechpakistan.com

Nano Indentation Testers

(03 Models) Manufactured by Nanomechanics Inc.

iMicro Nanoindenter

NEW!



Multi-Purpose Instrument

With flexibility in mind, iMicro allows for a wide range of tests including, but not limited to:

- Microhardness
- Storage & Loss Modulus
- Modulus and Hardness (Oliver and Pharr Model)
- Constant Strain Rate & Constant Loading Rate

Frequency-specific experiments The iMicro™ nanoindenter offers repeatable, accurate and precise measurement for applications that require loads up to 1000mN. By offering the highest performing and most capable mechanical characterisation microprobe on the market, the iMicro has the capability to perform accurate testing on a wide range of materials.

The iMicro brings cutting-edge technology to research labs across the world in a user-friendly, small footprint, dynamic package that can have you running precise experiments with highly accurate data in less than two hours. The iMicro is built to be robust and dependable, it's design gives you the confidence to run your system like you run your lab – at maximum capacity. With an industrial aluminum gantry, capable high-force actuator and reliable software, the iMicro is perfect when your research requires high-accuracy experiments and long-term repeatability.

Ease of Use

Every element of the iMicro is designed to provide lab technicians and researchers with an easy-to-use tool for characterising their materials and products. From its innovative magnetic sample loading system to its industry-leading software, iMicro makes experiments simple and allows for mistake-free, high-throughput mechanical testing that is required by today's leading labs.

High Performance

iMicro uses leading-edge technology developed by the inventors of the nanoindenter and provides for world-class specifications and best-in-industry performance. With available data acquisition speeds of 100kHz and industry-leading 20 micro second time constants, iMicro not only gives you the best data but also the most data points per dynamic experiment. With 1000mN of force and 80 microns of displacement, it also offers the best possible range of experiments and applications.

Flexible Applications

The iMicro provides a wide range of applications including:

- Thin films, coatings and surface treatments
- Metals, ceramics and polymers
- Composites
- Biomaterials
- MEMS and Nanostructures.
-
- Constant Strain Rate & Constant Loading Rate

Install & Software options

- iMicro on-site installation and on-site training
- Service Contract, 1 Year
- NanoBlitz 3D Fast Indentation & Property Mapping
- NanoBlitz 4D Mechanical Property Tomography

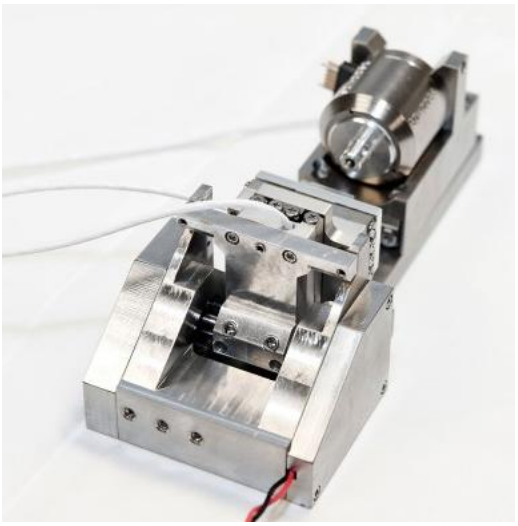
Actuator Specifications

Displacement measurement	Capacitive gauge
Displacement range	80 microns
Displacement resolution	0.04nm
Typical noise	< 0.25nm
Load application	Electromagnetic
Maximum load	1000mN
Load resolution	6nN

Controller specifications

Data acquisition rate	100kHz
Closed loop CPU control rate	500Hz
Dynamic excitation frequencies	0.1Hz – 1kHz

NanoFlip – Nanoindenter



The NanoFlip nanoindenter is designed to be the most versatile mechanical properties testing instrument on the market, operating seamlessly in either compressive or tensile modes. The NanoFlip nanoindenter is designed to be the most versatile mechanical properties testing instrument on the market. Offering researchers the option to use the tool in both in-situ environments and ambient settings depending on the demands of the experiment.
The NanoFlip nanoindenter is a high performing and capable mechanical properties microprobe, performing accurate testing on a wide range of materials in a wide range of lab settings.
Designed to be vacuum compatible, as all instruments in the InSEM product line, NanoFlip is ideal for in-situ environments including SEMs, FIBs and vacuum chambers, using the microscopes themselves to provide imaging. When your experiments take you ex-situ, NanoFlip is ready to perform and is able to operate under any imaging system imaginable such as AFMs, Optical Microscopes and Optical Profilometers. One year warranty on defects in manufacturer or workmanship.

The NanoFlip is compatible with:

- Both small and large chamber SEM/FIBs
- Optical Microscopes
- AFMs
- Optical Profilometers
- Raman
- XRD
- DIC and many others

Actuator Specification

- Displacement Measurement: Capacitive Gauge
- Displacement Range: 50µm
- Displacement Resolution (Electronic): 0.02nm
- Typical Noise: <0.1nm
- Load Application: Electromagnetic
- Maximum Load: 50mN
- Load Resolution: 3nN

Controller Specification

- Data Acquisition Rate: 100kHz
- Closed Loop CPU Control Rate: 500Hz
- Dynamic Excitation Frequencies 0.1Hz - 1kHz
- Travel: >5mm
- Minimum Step Size: <= 10nm
- Axial Stiffness: >8E+5 N/m
- One year warranty on defects in manufacturer or workmanship

iNano Nanoindenter

The iNano nanoindenter is easy to use and affordable, offering repeatability, accuracy and precision, putting nanoindentation capability into reach of any lab, from leading universities to high tech companies. By offering the highest performing and most capable mechanical characterisation microprobe on the market, at an affordable price, we offer our customers the capability to perform accurate testing on a wide range of materials, while remaining true to the principle of getting more for less. iNano brings cutting edge technology to research labs across the world in a user-friendly, small footprint, dynamic package that can have you running precise experiments with highly accurate data in less than two hours.

Flexible Applications

Whether you are a scientist in an industrial laboratory or a researcher in an academic environment, iNano provides a wide range of applications including:

- Thin films, coatings and surface treatments
- Metals, ceramics and polymers
- Composites
- Biomaterials
- MEMS and Nanostructures.

Multi-Purpose Instrument

With flexibility in mind, iNano allows for a wide range of tests including, but not limited to:

- Modulus and Hardness (Oliver and Pharr Model)
- Dynamic Mechanical Analysis (DMA Properties)
- Storage and Loss Modulus
- Constant Strain Rate and Constant Loading Rate

Actuator Specifications

Displacement measurement	Capacitive Gauge
Displacement range	50microns
Displacement resolution	0.02nm
Typical noise	< 0.1nm
Load application	Electromagnetic
Maximum load	50mN
Load resolution	3nN

Controller Specifications

Data Acquisition Rate	100kHz
Closed Loop CPU Control Rate	500Hz

Acoustic Microscopes and Optional Accessories

(03 Models) Manufactured by KSI

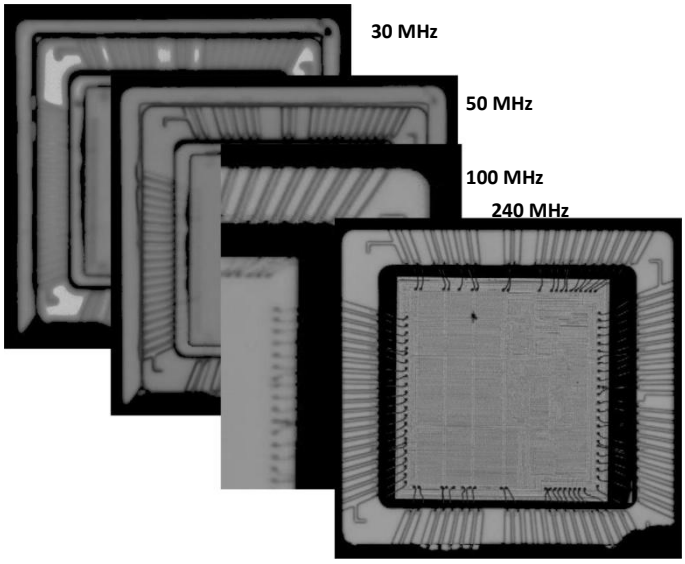
Basic Working Principle

An Acoustic Microscope (Ultrasonic Microscope) is based on the same working principle as the well known medical ultrasonic examinations:
A probe is moved (within a coupling fluid)across the area of interest. An image comes up showing the interior without violating the "object" under investigation.
The heart of the Acoustic Microscope is the probe (=Transducer; loudspeaker and microphone in one piece). It converts the electrical signal into the acoustic signal. The sound waves are focused and transmitted to the sample by the coupling fluid (normally water). The ultrasonic waves interact with the sample; one part is reflected back to the transducer, the other part is transmitted.
Basically there are 2 methods of ultrasonic imaging: In the majority of cases the "Pulse-Echo"-Mode is used. Amplitude, phase and time of flight of the reflected soundwave are analyzed to create the pixel-by-pixel image information. This mode operates with one transducer.
The counterpart of this mode is the "Transmission Mode" (=Through Scan Mode). In this process a second transducer underneath the sample receives the transmitted part of the soundwaves. This transmitted signal is the base for the acoustic through scan image.

Frequency, Resolution & Penetration Depth

The resolution of an ultrasonic picture depends heavily on the frequency used by the transducer. The higher the frequency of the transducer, the higher the possible resolution. Higher frequencies on the other hand are unable to penetrate as deep as lower frequencies do. To get the best possible image, usually a compromise between resolution and penetration depth has to be found.

Scanning Acoustic Microscope
Model: KSI V8™



Based on the proven KSI “v – series” and its outstanding performance, KSI presents the new state of the art KSI - v8 Scanning Acoustic Microscope.
The “8” stands for KSI’s eighth generation of acoustic microscopes, the most sophisticated SAM. The new system comes with new software features as automated error detection and quantitative sample analysis.

Scanning Acoustic Microscope
Model: KSI V8 Duo™

KSI builds a two in one scanning acoustic microscope to reduce rejections, improve flaw detection and productivity.
New transducers for the reduction of blisters and turbulences.
The KSI v8 Duo is the perfect device for the inspection of flip chips, solder joints, IGBT, wafer, bonded materials, special customized sample designs. KSI uses transducers from 1

– 400 MHz for best results for every application and material.

All advantages of a KSI v8 SAM plus:

- Simultaneous Pulse Echo and Through Transmission Mode option
- Customizable to customer specification
- Higher troughput and best price- performance ratio

Scanning Acoustic Microscope
Model: KSI V8 Multihead™

The KSI v8 Multihead is the superior solution for the inspection of flip chips, solder joints, IGBT, wafer, bonded materials, special customized sample designs in the shortest period of time possible.
With the KSI v8 Multihead you can utilize the full speed of the KSI v8 – multiple times simultaneously.
KSI v8 the all - rounder for the use in laboratories, research or production – now with multiple speed.

Advantages of a KSI v8 SAM plus:

- Simultanious Pulse Echo and Through Transmission Mode option
- Customizable to customer specification
- Higher troughput and best price-performance ratio

Scanning	Magnification	Up to 625x
	Scanfield	200µm x 200µm up to 400mm x 400mm*
	Sample Size	Up to 500mm x 750mm*
	Detectable	2µm (400MHz)
Motorized XY-drive	Driving System	Linear Motor System
	Speed / Acceleration	Up to 2m/s / Up to 30m/s²
	Repeatability	± 0.1µm
Motorized Z-drive	Travel Range	Up to 100mm
	Repeatability	± 0.25µm
Scanning mode	Standard	A, B, C, G, P, X, Z, Auto, Sequence and Tray Scan
	Optional	HD – Scan, Layer Thickness, Interface Shape
Transducer	Frequency (MHz)	From 5MHz up to 400MHz
Image	Resolution	Up to 32.000 x 32.000 pixels (1 Gigapixel)
	File Format	sam, saz, jpeg, bmp, tif, csv, RAW (ASCII)
System	Sample Tank	546mm x 780mm x 120mm*
	Dimensions	885mm x 900mm x 1332mm*
	Weight	550 KG*
	Power	100V – 240V / 1,5KW

KSI SEPIA Secure Embedded Platform for Industrial Automation

The aim of KSI SEPIA is to offer an independent, customized and powerful handling system for fully automated applications in conjunction with the multi-channel KSI SAM system. With SEPIA a fundamentally new system was created that allows a redundant, fault-free operation with equally stable SAM applications

KSI Auto SAM

Built to industry´s requirements the Auto SAM is a fully automated non-destructive diagnostic system for failure analysis, process and quality control for production. The system contains a 4-channel acoustic microscope and up to 4 automatic optical inspection units.

Key features

- Fully automated process
- 4-channel multihead acoustic inspection
- High UPH
- Auto pattern reconition
- VASCTM Software*
- Devices storage for long unattended process
- Magazin handling
- Automatic drying process
- Barcode and 2D code interpretation
- Automatic failure detection
- Marking system for failure devices
- Robust construction with granite platform
- Equipped with all safety installations necessary for production environments

KSI Auto Jedec Tray SAM

Built to industry´s requirements the Auto Jedec Tray SAM is a fully automated non-destructive diagnostic system for failure analysis, process and quality control for every IC package production. The system contains a multihead acoustic microscope and automatic optical inspection units.

Key features

- Fully automated process
- Multihead acoustic inspection
- High UPH
- VASCTM Software*
- Devices storage for long unattended process
- Magazin handling
- Automatic drying process
- Barcode and 2D code interpretation
- Automatic failure detection
- Marking system for failure devices
- Robust construction with granite platform
- Equipped with all safety installations necessary for production environments

KSI SAM L™

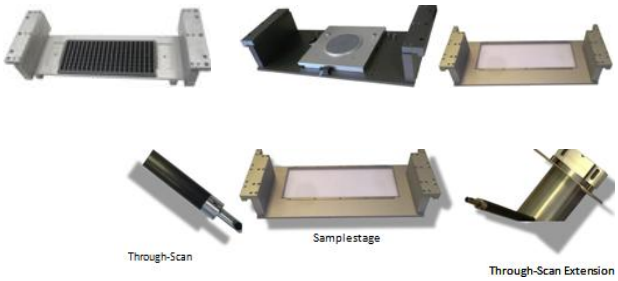
The new KSI SAM L™ is specially designed for measuring, evaluating and visualizing layer thicknesses. It's user friendly handling, compact design and attractive pricing results in the ultimate device for layer thickness Sample image due to analysis.
customer request

Key Features:

- Easy handling
- Compact design
- Attractive pricing
- Custom designs available
- 36 months warranty

KSI Sample Stages

To meet the demand of optimal throughput and to take full advantage of the capabilities of the KSI Scanning Acoustic Microscopes an optimized sample stage is often a necessity. KSI offers a wide range of sample stages to fulfill these requirements.



Key Advantages

Accurate, fast and efficient loading and unloading of specimens
Minimized setup times
Optimal sample fixation

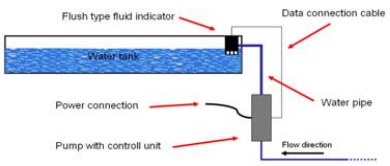
KSI Through-Scan-KIT

The KSI Through-Scan-Kit is required for inspection in transmission mode. With its new design higher scan-speed with less turbulences can be archived.

KSI Automated Sample Positioning Unit

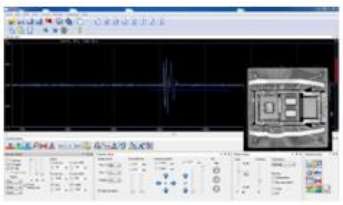
New high-precision lift, which supports the operator in fully automated positioning of samples into the watertank for non destructive ultrasonic inspection.

KSI Automated DI Water Refill Unit



The new DI water refill unit reduced in combination with the standart mounted automatic filter system the maintenance of a KSI SAM to an absolute minimum.

KSI Vision™ Software

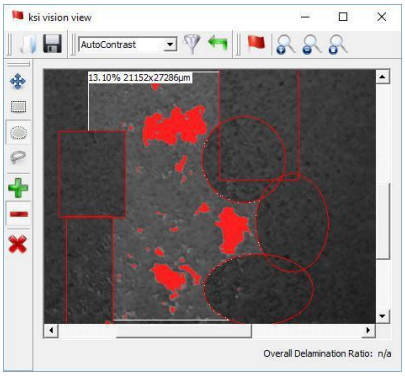


KSI VISION™ is an innovative and userfriendly software for all KSI SAM systems.
The software was developed for the needs of our customers in research, development and production control.

Key Features

- A, B, C, D, G, 3D, P, S, X, Z, Auto, Sequence, HQ and Tray-scan (free selectable x-y matrix scan),
- Fast fourier transformation (FFT)
- Digital waveform overlay
- Free selectable B,P and D–scan
- B-scan with quantitative measurement
- Image resolution up to 32.000 x 32.000 pixel
- A-scan real time display with time of flight function
- HQ-scan, pre-scan and fast pre-scan mode
- File format: bmp, jpeg, sam, saz, ASCII
- On screen measurement tools
- Thickness and distance measurement
- Control and automatic storage of all instrument settings including A-scan histogram
- Power, rf and video gain (total 80dB) gate delay,gate width (resolution 2ns)
- Variable gain, gate width and gate delay setting during scanning
- Threshold, positive-negative peak phase detection: amplitude, mean, bipolar
- Phase measurement with automatic delamination detection (selectable)
- Picture reset function for easy reconstruction of KSI-SAM images
- Impedance measurement with histogram and calibration curve
- User friendly multi language graphical interface
- Signalprocessing digital: FFT bandpass, Chebyshev, Moving average, Rectifier and Calculus

KSI VisionView™ Software



Custom designed KSI Vision™ software add-on for measuring delamination and image enhancement.

Key Features:

- Measurement of delaminating (custom areas possible due to add and subtract area features)
- Enhancement of the picture quality due to several post processing filters
- Export in BMP, JPG and PNG
- One click import directly from VISION software
- Easy handling

Some Other Useful Products

KSI High Dynamic (HD) – Scan
KSI Auto Focus
KSI Interface Shape Analysis
KSI Layer Thickness Analysis
KSI VASC™ Software
KSI 4D Analysis Software

Applications

Non Destructive Testing of ICs
Non Destructive Testing of IGBT
Non Destructive Testing of Solar Cell Modules
Non Destructive Testing of TSV VIA
Non Destructive Testing of MEMS
Non Destructive Testing of Welding
Non Destructive Testing in Material Science

All brochures are available for download at www.hightechpakistan.com

High Performance Liquid Chromatography

Model LC200 Manufactured by PGinstruments

HPLC analysis usually applies to different polarity in volatile or thermo stable organic compounds, also a variety of bioactive substances and natural products; synthetic and natural polymers amongst many. Today 80% of the organic compounds can use liquid chromatography for analysis and detection. It is widely used in the following areas of life.

In medical and pharmaceuticals, it may be used for drug analysis, detection of effective components, drug metabolite control, micro toxin in-vivo analysis and microbial drug analysis.

In the field of health and epidemic prevention it is useful for the clinical analysis, research disease control, microanalysis in biological areas, human biochemical analysis and metabolite analysis. In manufacturing it may be used for process control and product testing such as analysis of food preservatives, sweeteners, spices, food enzyme, carbohydrate, vitamins, nutrients, cosmetics preservatives and antimicrobial agent detection. Its other applications are in petrochemical for industrial process control, product testing and manufacturing processes. Use in quality control is it's another feature.

Other applications are in environmental monitoring, agricultural, forestry, fisheries, animal husbandry, education and scientific research, water conservation system, power station, military, public security detection and forensic.

High Pressure Pump

It exhibits good repeatability on both retention time and peak area. The solvent system incorporates a fluidic design that uses a serial flow path. The system employs dual plungers and two check valves for enhanced reliability. The dual cam gear is calculated to ensure optimal flow control whilst an integral seal wash system will extend the serviceable life of the piston and seals.

Versatile Range of Detectors

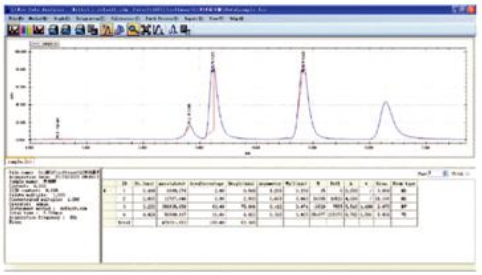
UV detector, DAD detector, ELSD detector, RI detector and Fluorescence detector to cover the applications related to research & development, Industry and Universities.





LCWin Control Software

LCWin is a liquid chromatography software package developed by PG Instruments. It provides complete instrument control and data processing functions with automatic and efficient operation. Instrument control, data analysis, diagnostics and report editing are four modules which provide comprehensive funtionality. The modern layout provides a convenient and user-friendly interface whilst wizard operations simplify configuration and operation.



LC230 Auto Sampler

The LC230 high performance Auto Sampler delivers superior reproducibility (<0.3% Full loop mode). This fully automated solution precisely measure sample volume with no sample loss and has impressive high speed 17 second injection cycle.

Accessories

Wide range of accessories like column, filtration system, different types of tubes, manual injection system, ultrasonic cleaner, fittings and multi-way connectors is available for the routine and future repair and maintenance of the system.

Portable X-Ray Generators for Radiography (30 Models)



Introduction

Portable X-ray generators are used in machinery manufacturing, aerospace, automotive vessels, pressure vessels, oil pipelines, chemical industry, metallurgy, railway transportation, military and other industrial production: such as inspection of the hull, piping, pressure vessels, boilers, aircraft quality, vehicles and bridges and other materials, spare parts processing welding quality, internal defects and a variety of light metal, rubber, ceramics and other processing.

All systems comprise of micro controller and analog circuits in combined mode with a user-friendly smart phone operating system having fast analog control system. All systems are laced with internal self-test, over voltage, under voltage, over-current, less current, temperature control, variety of protection circuits and signal lights. Automatic training machines and force 1: 1 way of working to ensure the stability of the equipment.

Features

- Compact controller internal structure, small size, with a handle for easy carrying.
- With a dust proof, waterproof membrane panel and touch keyboard, LED digital display, LED status indicators, display operation more simple and flexible.
- Complete automatic training machine function can improve staff efficiency and extend the life of the machine.
- With automatic over voltage, over current, under voltage, under current, pipe head over temperature protection and sound and light alarm.
- With functions of delay start-up pressure. Facilitate the operator to evacuate radiation area.
- Work and rest time according to 1:1 setting machine, with functions of forced to rest, don't change time to rest because of the mandatory power cuts.
- Controller can launch total run time record, no lose when power supply drop.
- Suitable for indoor or outdoor, aerial and other special work site environment applications.
- The controller is equipped with a safety lock to prevent illegal normal operation.

Standard Configuration

X-Ray generator, Controller, Power Cable, Connecting Cable, Operating Warning Light, and Instruction Manual.

Selection Guides

Portable X-ray Generators are classified into four categories XXH, XXQ, XXGH and XXG. Each category has many models so selection guides are tabulated for your ease. You may select your typical model readily according to your requirements and applications.

Portable X-ray Generators XXH Series - Glass Tube Panoramic

Model / Item		XXH-1605	XXH-2005	XXH-2505	XXH-3005	XXH-3505	XXHA-1005	XXHA-1605	XXHA-2005	XXHA-2505	XXHA-3005	XXHA-3505
Target Type		Flat					Cone					
Maximum Penetration Thickness (mm)		18	26	36	46	56	6	15	24	34	40	50
Input	Voltage	220V, 50/60 Hz										
	Capacity (KVA)	1.5	2.0	2.5	3.0	3.5	1.0	1.5	2.0	2.5	3.0	3.5
Output	Tube Voltage (KV)	60-160	80-200	130-250	150-300	200-350	40x100	60-160	80-200	130-250	150-300	200-350
	Tube Current (mA)	5										
	Fluctuations	±1%										
Focus		1.0X2.0	1.0X2.0	1.0X2.5	1.0X2.5	1.0X2.5	1.0x1.5	1.0X3.5	1.0X3.5	1.0X5.0	1.0X6.0	1.0X6.0
Radiation angle 360˚x		Flat target 25˚ Cone target 30˚										
Sensitivity		Better than 1.8%										
Work mode		Forced one: a work, five minutes of work, 5 minutes to rest (Duty cycle 50%)							Forced one: a work, six minutes of work, six minutes of rest (duty ratio 50%)	Forced one: a work, seven minutes of work, seven minutes of rest (duty ratio 50%)		
Controller	Size (mm)	350x295x160 (Without handle)										
	Weight (KG)	11										
	Line Structure	Digital display,automatic protection, automatic traning machine										

X-ray Generator	Cooling	Forced air										
	Insulation way	SF6 gas-insulated										
	Working Pressure	0.35MPa-0.45MPa										
	Size (mm)	210X 210X 620	270X 270X 665	330X 330X 750	330X 330X 765	340X 340X 820	160x 160x 520	210X 210X 620	290X 290X 685	330X 330X 750	340X 340X 850	340X 340X 850
	Weight (KG)	15	20	32	41	42	11	15	23	35	41	42
Operating ambient temperature		-20˚C - +40˚C										

Portable X-ray Generators XXQ Series Glass Tube Directional

Item \ Model		XXQ-1005	XXQ-1605	XXQ-2005	XXQ-2505	XXQ-3005	XXQ-3505
Maximum Penetration Thickness (mm)		8	20	28	38	50	60
Input	Voltage	220V 50Hz					
	Capacity (KVA)	1.5	1.5	2.0	2.5	3.0	3.5
Output	Tube Voltage (KVA)	40 - 100	60 - 160	100 - 200	150 - 250	170 - 300	180 - 350
	Tube Current (mA)	5					
	Fluctuations	± 1%					
Focus (mm)		1.0x1.0	1.0x1.0	2.0x2.0	2.0x2.0	3.0x3.0	3.0x3.0
Radiation Angle		40˚±2˚					
		Better than 1.8%					
Working Mode		Forced one: Five Minutes Work, Five Minutes Rest (Duty Cycle 50%)			Forced one: Seven Minutes Work, Seven Minutes Rest (Duty Cycle 50%)		
Controller	Size	350x295x160 mm (Without Handle)					
	Weight	11 KG					
	Line Structure	Digital Display, Automatic Protection, Automatic Training Machine					
X-Ray Generator	Cooling Mode	Forced Air					
	Insulation Way	SF6 Gas-Insulated					
	Working Pressure	0.35MPa-0.45MPa					
	Size (mm)	180x180X 540	230x230x 590	285x285x 650	320x320x 735	320x320x 850	320x320x 850
	Weight (KG)	10	17	21	31	39	39
Ambient Temperature		-20˚C - ±40˚C					

Portable X-ray Generators XXGH Series Ceramic Corrugated Tube Cone Panoramic

Item \ Model		XXGH-2005	XXGH-2005A	XXGH-2505	XXGH-2505A	XXGH-3005	XXGH-3005A	XXGH-3505	XXGH-3505A
Maximum Penetration Thickness (mm)		29	27	35	35	42	42	45?	48?
Input	Voltage	220V 50Hz							
	Capacity (KVA)	2.0	2.0	2.0	2.0	3.0	3.0	3.2	3.0
Output	Tube Voltage (KVA)	100 - 200	100 - 200	150 - 250	150 - 250	170 - 300	170 - 300	170 - 320	180 - 350
	Tube Current (mA)	5							
	Fluctuations	± 1%							
Focus (mm)		2.0x2.0	2.0X2.0	1.0x2.0	1.0x2.0	1.0x3.0	1.0x3.0	1.0x3.0	1.0x3.5
Radiation Angle 360˚X		30˚							
		Better than 1.8%							
Working Mode		Forced one: Five Minutes Work, Five Minutes Rest (Duty Cycle 50%)				Forced one: Six Minutes Work, Six Minutes Rest (Duty Cycle 50%)			
Controller	Size	350x295x160 mm (Without Handle)							
	Weight	11 KG							
	Line Structure	Digital Display, Automatic Protection, Automatic Training Machine							
X-Ray Generator	Cooling Mode	Forced Air							
	Insulation Way	SF6 Gas-Insulated							
	Working Pressure	0.35MPa-0.45MPa							
	Size (mm)	280x280x 620	230x230x 580	320x320x 660	280x280x 645	330x330x 840	320x320x 660	320x320x 710	320x320x 710
	Weight (KG)	22	19	32	27	37	32	37	38
Ambient Temperature		-20˚C - ±40˚C							

Portable X-ray Generators XXG Series Ceramic Tube Directional

Item \ Model		XXG-1605	XXG-2005	XXG-2505	XXG-3005	XXG-3505
Maximum Penetration Thickness (mm)		22	29	39	50	60
Input	Voltage	220V, 50Hz				
	Capacity (KVA)	1.5	2.0	2.5	3.0	3.5
Output	Tube Voltage (KVA)	60-160	100-200	150-250	170-300	180-350
	Tube Current (mA)	5				
	Fluctuations	± 1%				
Focus (mm)		1.2x1.2	2.0x2.0		2.5x2.5	3.0x3.0
Radiation Angle 360˚X		40˚				
		Better than 1.8%				
Working Mode		Forced one: Five Minutes Work, Five Minutes Rest (Duty Cycle 50%)				Forced one: Six Minutes Work, Six Minutes Rest (Duty Cycle 50%)
Controller	Size (mm)	350x290x150 (Without Handle)				
	Weight (KG)	12				
	Line Structure	Digital Display, Automatic Protection, Automatic Training Machine				
X-Ray Generator	Cooling Mode	Forced Air				
	Insulation Way	SF6 Gas-Insulated				
	Working Pressure	0.35MPa-0.45MPa				
	Size (mm)	220x220x580	280x280x620	320x320x650	320x320x700	320x320x700
	Weight (KG)	18	22	30	36	36
Ambient Temperature		-20˚C - ±40˚C				

X-Ray Pipeline Crawlers (8.6 inch – 47 inch)

General Introduction

This is a new model with advanced technology and updated principal. The highlight is magnetic control which is more convenient than video control (must be operated on the opening of pipeline) and better precision of locating. The efficiency is improved a lot and the operation will be easier. This new model is smaller, lighter and easy to disassemble and install. The operation is simple and reliable. Automatically move backward if low battery power, meeting water, meeting obstacles, over current, and lack of current, over-temperature. Alarm as well. Automatically move back if no operation over forty minutes.

Features

Easy start, Low -state positioning. To ensure accurate positioning at the same time, extend equipment life. Its feature of going through the welding machine without impacting of the welding machine is good for normal work. X-ray generator system has a regulatory function of KV, Tran illumination to ensure the x-ray film and degree of consensus. Electronic speed control motor function, to achieve constant torque, constant current operation, could be 40 percent energy saving at the same time motor over current protection. Automatically inspect the energy of battery. When the battery is not enough, the crawler will turn back in time. It has various real-time function to protect the x-ray generator of meeting water, over-voltage, zero voltage, over-current, zero current, meeting barrier, antenna falling off, x-ray generator falling off, over temperature. We use original Panasonic lead-acid batteries. Compared with lithium batteries, Lead-acid Batteries resist higher temperature, and more to prevent an explosion.

Selection Guide

Model	URX8202	URX8203	URX8204
Pipeline Diameter (Inches)	8.6-14	12.7-28	20-47
Pipeline Wall Thickness (mm)	0-20	0-28	0-30
Crawler Dimensions (mm)	1660x177x150	1500x245x200	1550x400x350
Control Device Dimensions (mm)	192x97x143		
Weight (KG)	30	67	90
Crawling Speed (M/Minute)	12	16	
Locating Error (mm)	5		
Locating System	Magnetic Medium Control		
Drive Type	Two Wheel		Four Wheel
Climbing Angle	15˚	30˚	40˚
Climbing Distance	5 KM		
Swerving Radii	≥ 10D		
Radiation Angle	360˚ - 40˚		
Anode Target	Cone		
Cooling	Fan Cooled		
Insulation	SF6		
Working Temperature	-20C˚ to 75C˚		
Relative Humidity	90 %		

Standard Configuration

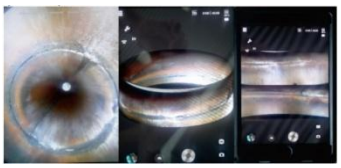
Crawler Dolly (1), Control System (1), Receiver (1), X-Ray Generator System (1), Batteries (one set of 10), Charger (1), Charger for Control System (1), Bracket Plate (1), Sliding Plate (1), Spindle Housing (1), Receiver Support Rod (2), Charging Cable (1), Connecting Cable (1)

Applications

Wi-Fi Panorama Digital High Resolution Endoscope

M-50P, M-50PS

The M-50P /M-50PS with HD digital camera, 17.25 Mega Pixels, 360 degree super wide angle lens. The signal is transmitted by WIFI to pad, mobile phone or internet. Gravity sensor keep camera is right position whatever is direction.



Features

Camera diameter: 55m
Sensor: 17.25 Mega Pixels, 1/2.3" BSI CMOS
Video Resolution: 2592x1944, Support 1080/30fps, 720/60fps
Photo Format: JPG
Fields of View: 360 degree, 214 degree at verticality
DOF: 20mm-infinte
Sensitivity: Auto, ISO 100-800
Electric Anti-shake
Shooting Mode: dome, 360 degree, wide angle, circle and sphere
Special software can re-edit photo
Interface: WIFI, SD Slot and USB
12000mAh Li-battery up to 12 hours work time
Storage: 32 GB
Cable length: 30 meter, Customized length
Waterproof: IP67
Light: Adjustable LED light greater than 300cd/m2
Tube diameter range (mm): 90-600
Multi-Languages
Monitor: 7 inch, 400 cd/m2 can be visible in sunshine

Radon Monitor RAD7

The DURRIDGE RAD7 is a truly versatile radon detector of mature and yet still state-of-the-art design. Its specifications match or exceed those of the most expensive radon measurement devices in the world. At the same time, it incorporates a number of exclusive features that are found in no other radon detector, regardless of price. Incredibly, the RAD7 is affordable.
The RAD7 is a sophisticated measuring instrument widely used in laboratories and research work around the globe, by radon testers, mitigators and home inspectors, in mines and deserts, on the ocean and up volcanoes, at extremes of temperature.
The RAD7 is also the simplest computer-driven electronic detector to use, with pre-programmed set-ups for common tasks. It's built to withstand everyday use in the field. A rugged, handsome case encloses the detector, which is self-contained and self-sufficient. The RAD7 comes complete, with a built-in air pump, rechargeable batteries, and a wireless infrared printer. The printer can be left in your office or your car, when desired, and the detector will collect data and store it for later printing or downloading to a PC.
The RAD7 is a Sniffer that uses the 3-minute alpha decay of a radon daughter, without interference from other radiations, and the instantaneous alpha decay of a thoron daughter. The RAD7 sniffs out entry points and radon gushers and recovers in minutes from high radon exposures. The RAD7 is also a Continuous Monitor that measures the EPA action level of 4 pCi/L, with 10% standard deviation, in under two hours. At the end of each run, the detector prints out a complete report.

Precision and Performance

- Fastest response and recovery times of any electronic monitor/sniffer on the market.
- Measures EPA action level of 4 pCi/L in just one hour.
- Recovers from radon highs in minutes - not hours.
- Spectrum printout verifies correct operation of instrument in field.

Convenience and Ease of Use

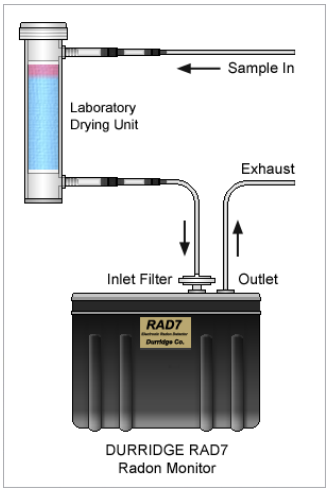
- All-in-one complete, compact, portable unit in handsome rugged carrying case.
- Microcomputer directs you, step by step, so you can do what you want to do.
- Programmed set-ups for often-used tests.
- Audible radon and thoron counts lets you hear the hot spots.

Security and Flexibility

- Tamper-proof key-lock command secures your RAD7 and assures uninterrupted testing.
- Easily portable: The RAD7 weighs 9.6 pounds (4.35 kg).
- Displays, prints, and downloads radon data in your choice of units.
- Immunity to build-up of 210pb.

Expandability and Value

- Includes wireless printer and infra-red data link for on-the-spot printouts.
- Available with a wide range of accessories for measuring radon in water and below ground.
- Versatile connectivity with an RS-232 port and USB compatibility adaptor
- Includes CAPTURE software for data retrieval and analysis. Full Macintosh and Windows compatibility.
- Includes rechargeable batteries and extensive documentation.



DURRIDGE RAD7
Radon Monitor

Operating the RAD7

The RAD7 is remarkably easy to use. It's ready to operate from the moment you turn it on. The first thing you will see is the Setup Review, which displays the current settings. This allows you to check that your machine is set up the way you want it for your intended use.

Now you and your RAD7 are ready to go to work. The machine is preset for a 1- or 2-day test... or you can preset for your particular job that day. When you arrive on site, just push the buttons and the test runs automatically.

A RAD7 exclusive feature is "Auto" mode. This starts a test in Sniff mode for quick response, a base-line reading. After 3 hours it automatically switches to "Normal" mode for the remainder of the test, assuring statistical precision.

You can leave your RAD7 for a 24-hour, 48-hour or any-hour test, knowing that the measurements will be correct, thanks to the "Test Lock" command, which locks the machine until you return. The display shows "DURRIDGE RAD7", the test continues and no amount of tampering - intentional or unintentional - can influence it.

Action level of 4 pCi/L, with 10% standard deviation, in one hour. At the end of each run, the detector prints out a complete report.

USB and Bluetooth Connectivity

Stored RAD7 data may be downloaded to a computer using a USB or serial connection. DURRIDGE offers a dedicated RAD7 communications software package called CAPTURE, which automatically transfers RAD7 data to disk, displays radon graphs, and produces a variety of supplementary information. CAPTURE can also monitor a RAD7 in real time with its Chart Recorder.

For situations where the RAD7 cannot be directly connected to a computer, DURRIDGE offers the Parani SD1000 Serial to Bluetooth Adaptor. This adaptor offers a 100 meter wireless range, and it comes pre-configured for plug and play compatibility with the RAD7 and CAPTURE. An optional 16 hour battery allows the adaptor to be used even in the absence of a reliable power source.

SCA, MCA and Geiger Mueller Counting Systems

Basic Counting System

A complete student nuclear lab station with built-in Geiger-Mueller counter, scalar with preset time, large 6- decade LED display, variable high voltage, sample positioning tray, 11-piece absorber set, serial and USB interface with software for data transfer to PC. System includes alpha, beta and gamma radioisotope sources, experiment manuals, USB cable and software for PC.

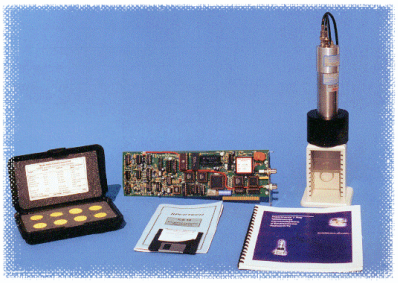
Introductory Counting System

A portable battery powered analog ratemeter system complete with Geiger-Mueller detector and stand, alpha, beta and gamma radioisotope sources, 20-piece absorber set, serial cable and software for connecting to PC. An excellent system for demonstrating the characteristics of radiation.

Intermediate Counting System

The Intermediate System features the ST360 Radiation Counter. The counter has both serial and USB interfaces for connection to a PC computer and also includes support for optional NaI(Tl) scintillation detectors. As supplied, the system is ideally suited for studying the characteristics of radiation and conducting a wide variety of experiments. Features include preset time and preset count modes, a digital ratemeter with audible alarm point and digitally controlled high voltage. Included are an external GM counter and stand with 10-position slots, USB cable, STX software for computer control and data transfer with a PC, five radioisotope sources, 20-piece absorber set, lab manuals on CD with sample data and necessary cables.

Integrated Computer Spectrometer PCI Card



Designed for spectroscopy applications, the Integrated Computer Spectrometer is available in 1024, 2048, and 4096 channel versions. The integrated amplifier and high voltage (0 to +1280) are fully compatible with most standard scintillation detectors eliminating the need for special tube bases and external modules. For ease of setup and calibration, coarse gain, fine gain, high voltage, and lower and upper level discriminator settings are controlled directly from the PC. For operation with other types of detector systems such as HPGe, alpha spectrometers or single photon counting, computer controlled input selectors are provided to bypass the scintillation amplifier and allow direct access to the ADC or MCS input. An optional subpanel is available to gain access to Gate input, MSB output for Mossbauer control and custom control signals.

SCA Spectrometer System

This spectrometer system provides a complete solution for counting the activity of specific gamma ray emission from radioisotopes. The system includes a 38x38mm scintillation detector with stand, lead shield and cables, a single channel analyzer with high voltage supply, amplifier and adjustable counting window and a counter/timer for displaying the activity. Also included is a usb cable and software for optional connection to a computer if required, and a set of 4 gamma sources for calibration. System may also be configured with SP78W-2 well detector assembly at additional cost.

Advanced Spectroscopy System

Designed for conducting a wide selection of spectroscopy experiments, the Advanced Lab features the ICS-1KPCI Integrated Computer Spectrometer for IBM compatible computers. This PCI plug-in card contains a computer controlled amplifier, high voltage, 1024 channel MCA, upper and lower level discriminators and multichannel scaling for half life and decay studies. The complete system includes a Na(Tl) scintillation detector with lead shield and multi-position sample stand, a set of 8 gamma emitting radioisotope sources including an “unknown”, MCA software with ISOMATCH peak identification and a lab manual of experiments in spectroscopy.

Gamma Counter for Wipe and Tube Samples

This system combines the ST360 Radiation Counter with the SD78W-1 Scintillation Well Detector assembly for gross gamma counting of wipes and tube samples. The USB interface and software allows optional connection to a PC computer for data collection and storage. The system is supplied with a Cs-137 source for checking system integrity and quality control.

Universal Testing Machines (07 Models)

Micro-Computer Gate Type Universal Testing Machine

Function and Purpose

Series LDW-E Microcomputer control electronic universal testing machine is applicable for tensile tests of material like rubber, plastic, textile, waterproofing material, cable, network wire, metal wire, metal rod, metal plate and others. With attaching tools, it can also do compression and bending tests.

Main Engine Structure

The engine structure is formed by the upper beam, the middle beam, the lower beam and the bottom panel with two pairs of ball screw-rod and a vertical column. The all-digital AC motor drives the reducer and the synchronic gear belt, so as to turn two pairs of high-precision and seamless ball screw-rod, and to make the beam move up and down. The high-precision and seamless ball screw-rod has improved transmission efficiency and displacement precision. The upper beam and working table is fixed with high-intensive light bars, which constitute a highly rigid frame structure..

Software Systems

With a branded computer to control the software operating system, it has the characteristic of high speed, mild interface and easy operation. It can meet the test measurement needs of different materials. With more than a hundred of test standards, it can satisfy the requirements of international standards, national standards and industry standards.

Selection Guide

Model / Parameter	LDW-E 10	LDW-E 20	LDW-E 50	LDW-E 100	LDW-E 200	LDW-E 300
Structure Form	Gate Type					
Maximum Testing Force (KN)	10	20	50	100	200	300
Operation Mode	Microcomputer Control					
Force Measuring Range	2%-100% of the Maximum Testing Force (0.4%-100%)					
Relative Error on Indicated Values of Testing Force	Better than ±1% of the Indicated Value (or ±0.5% Special Selection)					
Error on Deformation Force	±1% (or ±0.5%)					
Maximum Resolution	0.01N					
Deformation Accuracy	Better than ±1% (±0.05% Optional)					
Speed Governing Range (mm)	0.01 – 200					
Testing Travel (mm)	>700 (can be customized; Optional)					
Testing Space Adjusting Mechanism	Servo Motor Synchronized					
Appearance	As per GB/T2611					
Protection Function	Overload and Limit Protection					
Power Supply	220V					
Weight (KG) Approx.	400	500	600	1000	1300	2000
Operating Conditions	Ambient Temperature -35˚C-70˚C, Humidity 20% - 80%					
Clamp Form	According to Customer Requirements					

All Models

1. Digital Display Electric Universal Testing Machine (Single Arm) LDW-S
2. Digital Display Electric Universal Testing Machine (Gate Type) LDW-S
3. Microcomputer Control Electric Universal Testing Machine (Single Arm) LDW-E
4. Microcomputer Control Electric Universal Testing Machine (Gate Type) LDW-E Series
5. Microcomputer Control Hydraulic Universal Testing Machine LEW-W
6. Microcomputer Screen Display Hydraulic Testing Machine LAW Series
7. Digital Hydraulic Testing Machine LE Series

Grinding and Polishing Machines (04 Models)

Automatic Grinding and Polishing Machine LAP-1000

Six pieces Φ0-30mm can be polished simultaneously

Single point pneumatic holding, no demo gripper

Grinding and polishing procedures (rough and fine) are done continuously, no machine transition

Frequency converter control

Three-level constant speed for pre-grinding, grinding and polishing

Variable speed mode ranging from 0-1000n/min

Eight sections programmable control and automatic stop

Specifications

Disc diameter: Standard 250mm (Optional 230mm, 200mm)
Speed: 0-1000n/min, (customized)
Grinding head speed: 50-200n/min
Air pressure: 0.5-0.8MPa
Electrometer: 220V, 50/60Hz, 550W
Overall dimensions (mm): 710x430x640
Net weight: 74KG

Standard Configuration

Item	Quantity	Item	Quantity
Magnetic working plate(254mm)	01	Anti-sticky disc (254mm)	01
One side sticky grinding paper (250mm) #320, #1000	10/each	One side sticky polishing cloth (250mm), velvet fabric	01
Diamond polishing liquid, 6 micron	200ml	Lubrication cooling liquid, blue	200ml
Waterproof ring	01	Input water pipe adapter	01
Input water pipe	01	Power cable	01
Output water pipe	01	User manual, Guaranty Card	01 each

10114 | 1 olishing Machine

Technical Specifications Disc diameter: standard 250mm (optional 230mm, 200mm) Speed: 60-1000n/min, (customized) Grinding head speed: 50-200n/min Electromotor: 220V, 50/60Hz, 550W Overall Dimension: 710x 760 x 640 mm Net weight: 98kg

URNDT LHM-3000 Automatic Metallographic Inlaying Machine

All procedures are done automatically. It is used for all types material mounting press (hot mounting press and cold mounting press), and is one of the leading mounting press of the world. Pre-heating and cooling function, can efficiently short the mounting period.

URNDT LAP-2E Metallographic Grinding-Polishing Machine

Product Feature Two working plates, variable speed mode, grinding and polishing available. Main Technical Specifications Grinding disc diameter: 250mm Polishing disc diameter: 220mm Speed: 1000 r/min \500r/min 600 r/min \300r/min Electromotor

Repair and Up Gradation of X-Ray Diffractometer

- We are the sole company in Pakistan which has been repairing and upgrading X-Ray Diffractometer of Any Make or Model since 2002.
- After up-gradation, any old XRD performs like a new latest XRD for at least next ten years or more

HighTech Pakistan formerly known as "X-ray Instruments" in association with LinkTech has been repairing and upgrading X-Ray Diffractometer (XRD) of any Make or Model since 2002. The company has repaired and upgraded 12 XRDs of the following manufacturers:

Rigaku, BRUKER, STOE, PHILIPS, SHIMADZU, JEOL, PANalytical, NICOLET XRD CORPORATION, SIEMENS

Some of these systems had not been working for 2-7 years. We not only repaired these systems but also made them like new systems. Our upgraded systems are fully automatic and so user-friendly that no special training is required. Procedures of data acquisition, data processing, data handling and data printing are uncomplicated and fully automatic.

Standard Configuration of Up-Gradation Package

SN	Hardware	Description
1	NaI(Tl) Detector	For the improvement of count rate and detection limit
2	Dell Desktop	Intel Core i7, 500GB HD, 4GB RAM, Keyboard, Mouse
3	NI-DAQ Card	For data acquisition and control
4	Interfacing Card	For Communication between XRD and PC

SN	Software	Description
1	XPLORE	User-Friendly, Training-Less, Fully Automatic Control Software Interface for 02 Circle (2Theta, Theta) and 04 Circle (2Theta, Theta, Chi, Phi) XRD with Translation / Oscillation Motion based on Microsoft .NET Technologies
2	XPLOT	X-ray data processing and printing software – see details
3	SEARCH MATCH	Automatic phase identification software with latest database – see details
4	Windows 10	Operating System
5	Utilities	NI-DAQ drivers & Application Software, Adobe Reader

Optional Software

SN	Software	Description
1	DIFFTEX	Quantification of Crystallographic Texture for 02 Circle diffractometers
2	LABOTEX	Analysis of Crystallographic Texture for 04 circle diffractometers
3	DOPS	Determination of Particle Size

Estimated Cost

SN	Description	Cost (PKR)
2	XRD Up-gradation Package with Windows 10	17,20,000
3	DIFFTEX	70,000
4	DOPS	70,000
5	LABOTEX (A product of Poland)	4,50,000

XPLORE
(Control & Data Acquisition Software for XRD)

XPLORE is the Operating Software Interface which may be used for any XRD of any Make or Model. It can control X-Ray Diffractometer having 2Theta / Theta Drive System with or without Texture Attachment (Eulerian Cradle) and with or without Translation Motion Option. Some prominent are features are as under:

- Data saving in ASCII format which is acceptable for all Analytical and Non Analytical Software.
- Automatic Shutter control with Fail-Safe Mechanism.
- Fully Automatic, Training-Less, Maintenance-Free and Slimmest Hardware Interface.
- Fully Automatic Alignment. No special expertise is required to adjust the diffraction geometry.
- Free Service for 02 Years

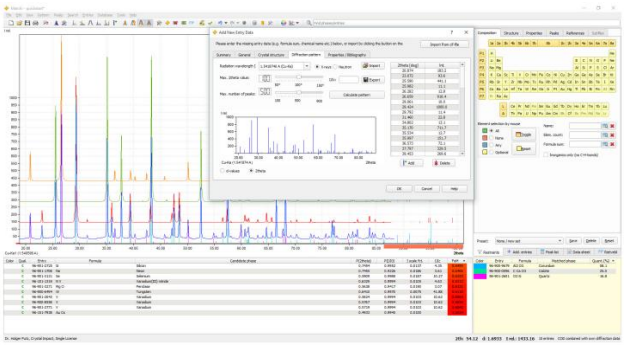
XPLOT (Price: PKR 70000)

XPLOT is the Processing and Printing Software which plots and prints X-ray diffraction patterns in seconds. Some prominent features are the following:

- Background Smoothing
- Baseline Straitening
- Branding Option
- Graph removal
- Crosshairs for Prompt Display of Intensity and Peak Position
- Customization of Back and Fore Colors
- Customization of Font Size for peak labels
- Data import in ASCII format
- Finding of Full width at half maximum
- Graph export as Image File
- Background Grid with Show and Hide Option
- Multiple Graphs Display for Comparison and Report Writing
- Page Setup Options (Portrait and Landscape)
- Peak Labels with Show and Hide Option
- Peak Search program
- Peak Search Data saving
- Peak Stripping
- Location Finder for K-Alpha1, KAlpha-2 and K-Beta peaks on graph area
- Print Options (Pattern and Report Style)
- Selection of various Wavelengths of X-ray Targets
- Single Page User-Friendly Interface

MATCH! (Product of Germany) (Price: PKR 125000)
Automatic Phase Identification and Analytical Software

Easy-to-use software which is used for phase identification from powder diffraction data. It compares the diffraction pattern of your sample to a database containing reference patterns, in order to identify the phases that are present. Additional knowledge about the sample like known phases, elements or density can be applied easily. In addition to this **qualitative analysis**, a **quantitative analysis** (using Rietveld refinement) can be performed as well. As reference database, you can apply the included **free-of-charge COD database** and/or any **ICDD PDF** product, use your valid ICSD/Retrieve (-2002) license, and/or create a user database based on your own diffraction patterns or crystal structure data. You can



easily setup and run **Rietveld refinements** from within Match!, with the actual calculations being performed automatically, using the well-known program **FullProf** (by J. Rodriguez-Carvajal) in the background. This provides a **gentle introduction into Rietveld refinement**, from fully automatic operation to the “Expert” mode. Another major improvement is the ability to display multiple experimental patterns on top of each other. This runs on Windows, Mac OS X and Linux.

Features

- Fast multiple phase identification from powder diffraction data
- Runs on Windows, Mac OS X and Linux
- Use free-of-charge reference patterns calculated from the COD (incl. I/Ic), any ICDD PDF database, valid license for ICSD/Retrieve and/or your own diffraction or crystal structure data in phase identification
- Perform Rietveld refinement calculations, e.g. for quantitative analysis, using the well-known FullProf in the background
- Instant usage of additional information (known phases, elements, density, color etc.) using perpetual restrain ting
- Automatic residual searching with respect to identified phases
- Automatic raw data processing including peak searching, profile fitting and 2theta error correction
- Comfortable background definition/modification using the mouse
- Convenient editing of peaks (add/shift/delete/fit) using the mouse
- Improved zooming and tracking using mouse or dialog
- Display several piled experimental patterns e.g. for comparison
- Semi-quantitative analysis (Reference Intensity Ratio method)
- Large variety of supported diffraction data file formats
- Multiple step undo/redo

LABOTEX (Product of Poland) (Price: PKR 450000)

Analysis of Crystallographic Texture

LaboTex software is a Microsoft Windows based tool for complex and detailed analysis of Crystallographic textures. This user-friendly program enables you to conduct a variety different calculations and graphic analyses of Orientation Distribution Function (ODF), Pole Figures (PFs) and Inverse Pole Figures (IPFs). LaboTex is a versatile piece of software which can be used to handle: crystallographic textures of materials such as metals and alloys, ceramics and composites, semiconductors and superconductors, polymers and rocks. All these materials can be of all types of the sample symmetry: Orthorhombic, Monoclinic, Triclinic, Axial or all types of the crystal lattice symmetry: Triclinic (symmetries after Schoenflies: C1), Monoclinic, (C2), Orthorhombic (D2), Trigonal (D3, C3), Tetragonal (D4, C4), Hexagonal (D6, C6), Cubic (O, T).

The main LaboTex features include:

- ODF calculation by ADC method with the ghost correction;
- Free from truncation errors of the series;
- ODF calculation using both types of experimental data: pole figures and sets of individual orientations;
- ODF, PF and IPF data measured, calculated and presented in a wide range of grid cells from radial angle 1.0 to 10 degrees with a background and defocusing correction;
- Texture analysis of all types of sample symmetry;
- A fiber texture analysis;
- A texture analysis for materials of all types of the crystal lattice symmetry;
- 2D and 3D graphic presentation of ODFs, PFs and IPFs;
- Simple on-line identification of the orientations, giving its parameters in Euler angles and Miller indices;
- Creation of additional pole figures and inverse pole figures;
- Creation of Misorientation Histograms;
- Creation of model ODF on the base of model functions (Gauss, Lorentz);
- Comparisons of ODFs and PFs (up to 12);
- Diagrams for the skeleton lines (alpha fiber, beta fiber etc.);
- An on-line qualitative texture analysis and A texture database;
- A quantitative texture analysis: the volume fraction of texture components by a model function and integration in the Euler space;
- ODF transformations (frame rotations, crystallites rotation models);
- ODFs logical functions (sum, union etc.);
- Transformations of ODF to a set of single orientations;
- Input data in more than 30 data formats;
- Rotations and Symmetrizations of experimental pole figures;
- Plotting graphics on mono and color printers;
- Passing graphical objects to other Windows applications via the clipboard or creating image files in the *.BMP or *.TIF format;
- Exporting ODF and pole figures to the ASCII format;
- Easy management of the data and results by collecting in symmetries, projects, samples and jobs.

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Spectrum Technologies

See details at page 25

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9. Low-Temperature Chamber: TTK 600
10. Multi-Sample Humidity Chamber: MHC-trans
11. PC-controllable Alignment Stage
12. Reactor Chamber: XRK 900
13. Tensile Stage: TS 600

See details at page 9

Radiography – Complete Solution

See details at page 22

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