

V . S . E Q U I P M E N T & A U T O M A T I O N S P V T . L T D .

VS XRF PLUS

Laboratory ED-XRF Spectrometer

W H E R E S P E E D M E E T S C E R T A I N T Y



60 kV · 40 mm² Fast SDD · 500,000 cps · 16-Position Autosampler

P R E C I S I O N A N A L Y T I C S | L A B O R A T O R Y X R F S Y S T E M S

INSTRUMENT OVERVIEW

VS XRF PLUS

The VS XRF PLUS is a professional-grade, benchtop energy-dispersive X-ray fluorescence (ED-XRF) spectrometer engineered for high-precision qualitative and quantitative elemental analysis. Integrating a 60 kV digital X-ray source, an ultra-large 40 mm² Fast SDD detector, and a proprietary 80 MHz digital pulse processor, the instrument delivers exceptional throughput and detection limits across the full analytical periodic table—from sodium (Na, Z=11) to uranium (U, Z=92).

**500,000
cps**

MAX COUNT
RATE

60 kV

X-RAY TUBE
VOLTAGE

**1,000
µA**

MAX TUBE
CURRENT

**1,000
/day**

SAMPLES
(AUTOMATED)

PERFORMANCE FEATURES

Six Core Analytical Advantages

Unmatched Throughput

Proprietary Dynamically Adaptive Shaping (DAS) digital pulse processor at 80 MHz, paired with a 40 mm² Fast SDD detector, achieves count rates exceeding 500,000 cps—maximising statistical confidence in minimum acquisition time.

Rare Earth Element Capability

Operating at 60 kV enables K-line analysis of the full lanthanide series (La through Er)—analytical coverage unavailable on conventional laboratory XRF systems. No matrix standards required.

Light Element Precision

1,000 µA tube current combined with an optional helium purge environment delivers industry-leading detection limits for Na, Mg, Al, Si, P, and S. Sub-millimetre collimators enable micro-spot analysis of welds, inclusions, and fine components.

Automated Sample Workflow

Motorised 16-position sample changer with integrated sample spinner handles inhomogeneous materials systematically, sustaining throughput of up to 1,000 samples per workday without operator intervention.

Long-Term Calibration Stability

The digiX-60 digital X-ray source incorporates real-time ambient temperature and pressure correction with automatic calibration adjustment, maintaining reproducibility without scheduled recalibration events.

Precision Sample Targeting

High-resolution CCD camera integrated with a motorised collimator changer provides pixel-level control over measurement position—essential for localised analysis of small features, heterogeneous inclusions, and weld zones.

TECHNICAL SPECIFICATIONS

VS XRF PLUS | Laboratory ED-XRF Spectrometer

EXCITATION SYSTEM: X-Ray Source	
Anode Material	Tungsten (W), Rhodium (Rh), Silver (Ag)
Maximum Tube Voltage	60 kV
Maximum Tube Current	1,500 µA
X-Ray Power	12 W 50 W
Stability	±0.01%
Excitation Type	Direct excitation
Safety Function	Automatic X-ray tube ageing; auto shutdown
Filter Changer	8-position motorised;
Collimator Changer	5-position motorised; range 1 mm-10mm (computer-operated)
DETECTOR ASSEMBLY	
Detector Type	Fast Silicon Drift Detector (Fast SDD)
Active Area	40 mm²
Energy Resolution	<140 eV at Mn Kα <85 eV at Al Kα
Maximum Count Rate	500,000 cps
Detector Cooling	Peltier thermoelectric—no liquid nitrogen required
SIGNAL PROCESSING ELECTRONICS	
Digital Pulse Processor	Proprietary DAS (Dynamically Adaptive Shaping)
Sampling Rate	80 MHz
MCA Channels	4,096
ELEMENTAL ANALYSIS	
Analytical Range	Sodium (Na, Z=11) to Uranium (U, Z=92)
Detection Limits	≤10 ppm to 100% concentration
Rare Earth Coverage	La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er via K-line

SAMPLE HANDLING

Sample Types	Solids, powders, liquids, thin films, coatings, granules, suspensions, foreign particles—no pre-treatment required
Sample Chamber Atmosphere	Air or helium
Sample Observation	Semiconductor camera integrated in chamber
Autosampler	16-position motorised sample changer with integrated spinner

SOFTWARE & ANALYSIS METHODS

Operating System	Windows 10 / 11
Analysis Algorithms	Fundamental Parameters (FP), Empirical calibration, Thin-film FP, Background FP, Manual spectral comparison
Qualitative Analysis	Standard less identification of unknown samples
Output Formats	Elemental concentration in tabular and spectral form
Calibration Standards	Annual calibration with certified reference materials (CRMs); standards supplied by manufacturer

CONTROL SYSTEM & HARDWARE

Computing Platform	Windows based PC
Automation	Fully automated: sample mounting, X-ray source, detector assembly

PHYSICAL & ENVIRONMENTAL

Instrument Dimensions	430 × 340 × 200 mm
Instrument Weight	18 kg
Power Supply	90–240 V AC, 50/60 Hz
Power Consumption	50 W (instrument)
Operating Temperature	–5°C to +50°C
Operating Humidity	10%–90% RH, non-condensing

APPLICATIONS

Industry Verticals & Analytical Domains

 Metals & Alloys Grade ID, incoming QC, scrap sorting	 Mining & Geochemistry Ore grade, field-to-lab continuity	 Rare Earth Elements La-Er K-line quantification	 Pharma & Life Sciences Elemental impurity (ICH Q3D)
 Semiconductor & Electronics RoHS/WEEE compliance screening	 Environmental & Soil Contamination, waste screening	 Petroleum & Petrochemicals Sulphur, metals in fuels & oils	 Jewellery & Precious Metals Karatage, coating thickness

WARRANTY & COMPLIANCE

System Warranty	One years on complete instrument and control system; Additional warranty as per user requirement
Calibration Service	Annual calibration with certified reference standards; certificate issued; manufacturer provides reference samples



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& Automations
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