

Commercial Proposal

Master Catalog: XRF & OES Analytical Instruments for Global Industrial Procurement — Metal-Asia.pw

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Target Markets: North America, EU, UK, APAC, Middle East, Latin America, Africa

HS Codes: [9027.30](#) — Optical spectrometers; [9027.80](#) — Other physical/chemical analysis instruments

Compliance: ISO 9001:2015, ISO 17025:2017, CE, FCC, RoHS 3, REACH, NIST-Traceable, DAkkS, ILAC-MRA

Executive Summary

Metal-Asia.pw is a global procurement and compliance-certified distribution partner for Tier-1 analytical instrumentation manufacturers. This master catalog consolidates our complete product portfolio across portable XRF, benchtop XRF, optical emission spectrometry (OES), and lifecycle service — with full technical specifications, application guidance, global logistics documentation, and supply chain compliance frameworks.

Our clients operate under stringent regulatory and audit requirements: IATF 16949 (automotive), AS9100 (aerospace), API (petrochemical), EPA (environmental), and national nuclear regulatory standards. Every instrument we supply is accompanied by factory-authorized calibration certificates, full regulatory dossiers, and a documented chain of custody from manufacturer to end user.

Global Procurement Compliance Framework

Supply Chain Integrity & Counterfeit Risk Mitigation

Risk Factor	Unauthorized / Gray-Market Source	Metal-Asia.pw Authorized Channel
Detector Authenticity	Non-original detectors mislabeled as SDD; resolution degradation	Factory-serialized detectors with manufacturer QA certificates
Software License	Pirated or locked firmware; no update path	Perpetual license with OTA updates; open alloy library expansion
Calibration Traceability	No NIST/DAkkS traceability; data legally non-defensible	NIST-traceable or DAkkS certificate; ILAC-MRA crossover available
Regulatory Certification	Missing CE/FCC/RoHS documentation; customs seizure risk	Full regulatory dossier per destination jurisdiction
Warranty Enforceability	No manufacturer-backed warranty; total loss exposure	2–3 year international warranty; extendable to 5 years

Risk Factor	Unauthorized / Gray-Market Source	Metal-Asia.pw Authorized Channel
Service & Spares Availability	No parts; equipment becomes non-repairable within 2–3 years	Regional depot stocking; 48-hour dispatch; factory-trained technicians
Audit Documentation	Gaps in chain-of-custody; ISO 17025 audit failure	Complete documentation package for ISO, API, ASME, NRC audits

ROI Analysis: Total Cost of Ownership (TCO) for authorized instrumentation over 10 years is typically 40–60 % lower than gray-market alternatives when accounting for avoided downtime, audit failure costs, and premature replacement.

Complete Product Portfolio

Category 1: Handheld (Portable) XRF Analyzers

Evident Vanta Series

Model	Detector	Elements	IP Rating	Weight	List Price From (USD)	Best Application
Element	PIN	Ti–U	IP54	1.54 kg	\$18,500	Basic sorting, training facilities
Element-S	SDD	Mg–U	IP54	1.54 kg	\$24,500	Al/Mg alloys, non-ferrous scrap
Core (W)	SDD	Ti–U	IP65	1.85 kg	\$29,000	PMI, energy, pipeline QA
Core (Rh/Ag)	SDD	Mg–U	IP65	1.85 kg	\$32,000	Universal foundry & scrap
Max (W)	Large SDD	Mg–U	IP65	1.9 kg	\$45,000	Geology, mining exploration
Max (Rh)	Large SDD	Mg–U	IP65	1.9 kg	\$48,000	Maximum throughput demand
L-Series	PIN/SDD	Ti–U	IP55	1.7 kg	\$21,000	RoHS, jewelry, small components

Bruker S1 TITAN Series

Model	Detector	Elements	Filters	Spot	SMART Grade	List Price From (USD)	Best Application
200	PIN	Ti–U	Fixed	8 mm	No	\$19,500	Training, jewelry workshops

Model	Detector	Elements	Filters	Spot	SMART Grade	List Price From (USD)	Best Application
300	SDD	Ti-U	Fixed	8 mm	No	\$24,000	Basic PMI, startups
500	Standard SDD	Ti-U	Fixed	8 mm	No	\$28,500	Universal alloy sorting
500S	FAST SDD Graphene	Mg-U	None	8 mm	No	\$34,000	Al/Mg alloys, cost-optimized
600	FAST SDD Graphene	Mg-U	4-position	5 mm	Yes	\$41,000	PMI, incoming inspection, foundries
800	FAST SDD Graphene	Mg-U	5-position	8/5/3 mm	Yes	\$52,000	Geology, defense, catalytic converters

Category 2: Benchtop (Stationary) XRF Analyzers

Model	Type	Detector	Elements	Weight	List Price From (USD)	Best Application
Vanta GX	Benchtop EDXRF	PIN/SDD	27 elements	10 kg	\$16,500	Precious metals, karat, pawn, bullion
Vanta iX	In-line EDXRF	SDD	Mg-U	Integratable	Quoted	Production line automation
Rigaku NEX QC	Benchtop EDXRF	SDD	Na-U	35 kg	\$22,000	Universal laboratory
Rigaku NEX QC+	Benchtop EDXRF	SDD	Na-U	35 kg	\$28,000	Quantitative analysis without standards
Malvern Epsilon 1	Benchtop EDXRF	SDD	Na-U	35 kg	\$19,500	Precious metals, RoHS, polymers
Malvern Epsilon 4	Benchtop EDXRF	SDD	Na-U	45 kg	\$34,000	High throughput, automated sample changer

Category 3: Optical Emission Spectrometers (OES)

Model	Type	Range (nm)	Elements	Weight	List Price From (USD)	Best Application
Bruker Q2 ION	Mobile OES	170–620	C, S, P, B, N + metals	28 kg	\$28,000	Mobile lab, field PMI
Bruker Q4 TASMAN 200	Benchtop OES	200–620	Metals (no C,S,P,N)	75 kg	\$36,000	Non-ferrous metals, scrap
Bruker Q4 TASMAN 170	Benchtop OES	170–620	S, P, B, N + metals	75 kg	\$42,000	Universal metallurgical
Bruker Q4 TASMAN 130	Benchtop OES	130–620	C, S, P, B, N, O + metals	75 kg	\$49,000	Foundries, steel mills, defense
Thermo ARL easySpark	Benchtop OES	Full	C, S, P, N, Li, Na + metals	75 kg	\$38,000	Automotive industry QC
Hitachi PMI-MASTER Smart	Mobile OES	170–620	C, S, P, B, N + metals	10 kg	\$39,000	Compact field PMI
Hitachi PMI-MASTER Pro2	Mobile OES	170–620	C, S, P, B, N + metals	15 kg	\$45,000	Pipeline field PMI
Bruker Q8 MAGELLAN	Floor-standing OES	120–800	Full, including gases	400+ kg	\$125,000	Large steel mills, nuclear

Industry-Specific Application Matrix

Metallurgy & Scrap Processing

Key Requirements: Alloy sorting, incoming inspection, PMI, melt control, batch certification.

Recommended Configuration	Application	Rationale
Vanta Max (Rh) + Q4 TASMAN 130	Large integrated steel mill	Handheld XRF for scrap yard + OES for melt control lab
S1 TITAN 800 + Q4 TASMAN 170	Medium-scale scrap processor	Universal Mg–U sorting + precise Fe/Al/Cu lab analysis
Vanta Element-S (2–3 units)	Small scrap collection facility	Cost-effective Al/Mg alloy discrimination; hot-swappable batteries
PMI-MASTER Pro2	Pipeline / pressure vessel contractor	Field C, S, P analysis — critical for boiler and pipeline code compliance

Mining & Geology

Key Requirements: Ore exploration, drill core logging, pathfinder element detection, grade control.

Recommended Configuration	Application	Rationale
Vanta Max (Rh)	Exploration field parties	GPS/GNSS, -10 to +50 C, rapid ore assay in desert / tundra conditions
S1 TITAN 800 + GeoChem Trace	Gold / rare earth exploration	FAST SDD ppm-level Au detection; SMART Grade auto-optimization
S1 TITAN 600	Drill core logging at mine site	Lightweight 1.5 kg; long battery life; real-time grade boundary definition

Environmental Compliance (RoHS / REACH / EPA)

Key Requirements: Heavy metal screening in soils, e-scrap analysis, product compliance verification.

Recommended Configuration	Application	Rationale
Vanta Core (Rh) + Soil Calibration	Contaminated site remediation	EPA 6200 compliance; automatic soil moisture/type correction
S1 TITAN 800 + Soil/GeoChem	Catalytic converter recycling	Pt, Pd, Rh in ceramic honeycomb; high accuracy for pricing
Vanta L-Series + RoHS Calibration	E-scrap pre-processing screening	Cd, Pb, Hg, Cr, Br, Cl — direct IEC 62321 report export
Malvern Epsilon 4	Laboratory RoHS verification	Automated high-volume screening; zero helium for light elements

Precious Metals & Jewelry

Key Requirements: Karat verification, fineness determination, counterfeit detection, plating identification.

Recommended Configuration	Application	Rationale
Vanta GX	Jewelry workshop / pawn shop	6 mm spot; 5-second karat result; VGA camera for documentation
S1 TITAN 800/600 + Precious Metals	Bullion dealer / refinery	Handheld verification of Au/Ag/Pt/Pd + trace impurities
Vanta Element-S	Coin dealer / numismatics	Cost-effective authenticity check for investment coins
Malvern Epsilon 1	Refinery QC laboratory	Zero helium; sub-ppm precious metal purity confirmation

Global Logistics & HS Code Reference

Harmonized System Classification

HS Code	Description	Application	Duty (MFN)	VAT/GST
9027.30	Spectrometers, spectrophotometers and spectrographs using optical radiations	OES spectrometers	0–3.5 %	Per jurisdiction
9027.80	Other instruments for physical or chemical analysis	EDXRF analyzers	0–3.5 %	Per jurisdiction
9027.90.50	Parts and accessories for instruments of 9027.20–80	Detectors, tubes, gratings, CCD arrays	0–3.5 %	Per jurisdiction
9022.90	Parts and accessories of X-ray apparatus	X-ray tubes (spare parts)	0–3.5 %	Per jurisdiction
8541.40	Photosensitive semiconductor devices (diodes)	PIN/SDD detectors as standalone components	0–3.5 %	Per jurisdiction

Customs Documentation Package

Document	Purpose	Provided By
Commercial Invoice	Value confirmation for customs	Metal-Asia.pw
Packing List	Itemized contents of shipment	Metal-Asia.pw
Certificate of Origin (CO)	Country of manufacture verification	Manufacturer (Evident / Bruker / Hitachi / etc.)
Specification Sheet	Technical parameters for classification	Metal-Asia.pw
X-Ray Safety Passport	Radiation safety compliance for customs / end-user licensing	Manufacturer
Calibration Certificate	Metrological traceability confirmation	Manufacturer (NIST/DAkks)
Warranty Certificate	Warranty terms and conditions	Manufacturer / Metal-Asia.pw
Declaration of Conformity	CE / FCC / RoHS / REACH compliance	Manufacturer
ISO 17025 Calibration (optional)	Accredited laboratory certificate	Third-party accredited lab

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General Knowledge

What is an XRF analyzer and how does it work? XRF (X-ray Fluorescence) is a non-destructive analytical technique that irradiates a sample with X-rays and measures the characteristic fluorescent radiation emitted by atoms. Each element emits lines at unique energies, enabling both qualitative identification and quantitative concentration determination. XRF analyzers are available as handheld (field-portable) and benchtop (laboratory) configurations, using PIN or SDD detectors.

What is the difference between XRF and OES? XRF is non-destructive, requires no sample preparation or consumable gases, and analyzes any solid form — but is limited to elements heavier than Na (Z=11) with ppm-level detection limits. OES uses spark discharge in argon, requires surface preparation, but determines light elements (C, S, P, B, N, O) with sub-ppm detection limits and superior precision for metallic matrices.

Pricing & Procurement

What is the price of an XRF analyzer in 2025? Handheld XRF analyzer pricing in 2025 ranges from approximately \$18,500 USD (entry-level PIN detectors) to \$52,000 USD (professional FAST SDD with Graphene Window). Benchtop XRF ranges from \$16,500 to \$34,000. OES spectrometers range from \$28,000 (mobile) to \$125,000 (high-end floor-standing). Prices include international delivery, customs clearance, calibration, and operator training.

Where to buy an Evident Vanta or Bruker S1 TITAN XRF analyzer? Metal-Asia.pw is an authorized global procurement partner for Evident Scientific and Bruker Elemental, providing certified sales, NIST-traceable calibration, ISO 17025 services, and authorized depot-level repair across North America, EU, Middle East, and APAC.

What is the HS code for an XRF analyzer or OES spectrometer? XRF analyzers and OES spectrometers are classified under HS Code 9027.30 (optical spectrometers) or 9027.80 (other physical/chemical analysis instruments). Import duties for scientific instruments are typically 0–3.5 % under MFN tariff schedules. Full customs documentation is provided with every shipment.

Technical Guidance

Which detector is better for aluminum and magnesium analysis: SDD or PIN? SDD (Silicon Drift Detector) is mandatory for direct measurement of aluminum (Al, Z=13) and magnesium (Mg, Z=12). SDD delivers <145 eV resolution and count rates up to 500,000 cps. PIN detectors cannot resolve Mg and Al lines and are limited to Ti (Z=22) and heavier elements. Recommended models: Evident Vanta Element-S, Vanta Max, Bruker S1 TITAN 500S/600/800.

How often should an XRF or OES analyzer be calibrated? Industry best practice and ISO 17025 requirements specify annual calibration verification for XRF and OES instruments used in certified laboratories. Instruments in high-throughput production environments may require semi-annual verification. Metal-Asia.pw provides NIST-traceable and ISO 17025-accredited calibration services globally.

What is the best OES spectrometer for a steel foundry? For steel foundries requiring carbon, sulfur, phosphorus, and nitrogen analysis, the Bruker Q4 TASMAN 130 (130–620 nm) or 170 (170–620 nm) is recommended for benchtop melt control. For large integrated mills, the Bruker Q8 MAGELLAN provides

up to 80 channels with hybrid PMT/CCD detection. For field PMI of pipelines and welds, the Hitachi PMI-MASTER Pro2 or Smart offers mobile C,S,P,B,N capability.

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