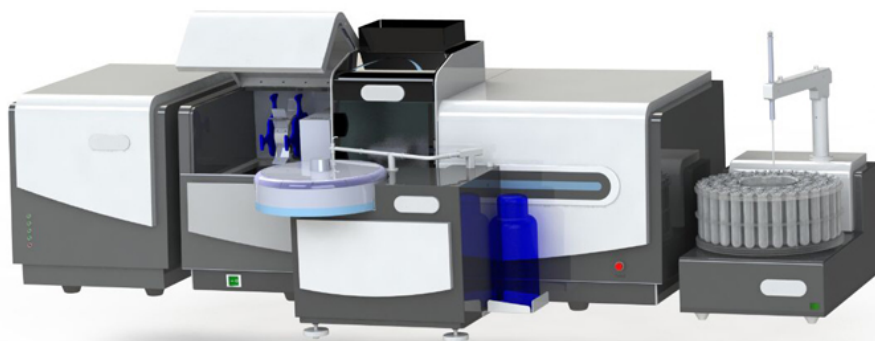




**AAS - ATOMIC
ABSORPTION
SPECTROPHOTOMETER
AAS3000FG-PRO
(FLAME + GRAPHITE
FURNACE TYPE - PRO
VERSION)**

AAS - Atomic Absorption Spectrophotometer AAS3000FG-Pro (Flame + Graphite Furnace Type - Pro Version) is an advanced atomic absorption spectrophotometer, designed as an essential tool for precision metal analysis. This high-performance instrument is celebrated for its selectivity, broad application scope, heightened sensitivity, user-friendly and rapid operation, cost efficiency, and outstanding accuracy.

The AAS3000FG-Pro serves diverse industries, including geology, mining, metallurgy, agriculture, forestry, soil and fertilizer management, hydrology, environmental science, petrochemical processing, food and drug safety, and third-party testing. Its versatility and reliability make it a key resource for precise and efficient metal testing across these sectors.

APPLICATIONS

The Torontech AAS3000FG-Pro is a high-performance instrument for the quantitative analysis of metallic elements across a vast dynamic range, from major constituents down to ultra-trace levels. By integrating both flame and graphite furnace technologies into a single, automated platform, it provides the definitive data required for process control, regulatory compliance, and advanced research, making it a cornerstone for any modern analytical laboratory.

This critical elemental analysis is indispensable for ensuring quality, safety, and compliance in:

- **Environmental & Regulatory Compliance:** For the ultra-trace analysis of water, soil, and waste streams to quantify toxic heavy metals like lead, cadmium, mercury, and arsenic, ensuring adherence to the most stringent environmental protection standards.
- **Food Safety & Public Health: of food products and pharmaceuticals, providing the ultra-sensitive detection needed to safeguard public health.**
- **Mining & Geochemistry:** To perform both high-grade ore analysis and ultra-trace level geochemical exploration, accurately determining the concentration of precious and base metals to guide mining operations and resource evaluation.

- **Advanced Materials & High-Purity Metals:** For the quality control of advanced alloys, semiconductors, and high-purity chemicals, where the precise quantification of trace and ultra-trace metallic impurities is critical to final product performance and reliability.

FEATURES

Core Features

- **Fully Automatic Switching:** Automatic flame and graphite furnace switching saves time and eliminates manual processes.
- **High-Reliability Flame System:** Includes automatic flow control and ignition for steady, reliable performance.
- **Graphite Furnace Safety:** Equipped with multiple temperature protections, including dual air circuit breakers, to prevent overload and temperature anomalies.
- **Gas-Liquid Separation System:** Optimizes performance in high humidity and limited gas supply environments.
- **Safety Interlocks:** Includes multiple alarm and interlocking systems for automatic shutdown in case of safety anomalies.
- **Modular Design:** Facilitates easy repair and replacement of parts due to its modular structure and circuit design.
- **Functional Extensions:** Supports additional methods such as the hydride, flame emission, and high-temperature flame methods, as well as compatible accessories for enhanced analysis flexibility.

Technical Specifications

- **Wavelength Range:** 170 nm to 900 nm
- **Wavelength Accuracy:** Within ± 0.10 nm, repeatable up to 0.05 nm
- **Baseline Stability:** Drift below 0.002 Abs, noise under 0.001 Abs in steady and dynamic states

- **Resolution:** Bandwidth deviation up to 0.02 nm, manganese energy ratio capped at 25%
- **Flame Sensitivity (Copper):** Limit of detection (LOD) at 0.002 µg/mL, precision no more than 0.3%
- **Graphite Furnace Sensitivity (Cadmium):** LOD at 0.4 pg, precision no more than 2.0%
- **Background Correction:** Deuterium lamp correction up to 1.0 Abs, self-absorption method up to 2.0 Abs

Optical and Light Source Systems

- **8-Lamp Position Design:** Automatic rotation, switching, and collimation for high-efficiency analysis.
- **Simultaneous Illumination:** Preheats 1 to 8 lamps concurrently for faster workflow.
- **Optical System:** Features a Czerny-Turner monochromator and diffraction grating with 1800 grooves/mm.

Automation and Data Processing

- **One-Key Operation:** Simplifies processes and supports multi-task analysis.
- **Data Management:** Supports automatic curve fitting, concentration calculations, and outputs in Word/Excel formats for easy documentation.

Flame System

- **Burner and Spray Chamber:** Designed for corrosion and flame resistance; includes adjustable burner head and automatic ignition control.
- **High Precision Control:** Automated gas flow adjustments and detection data display via a pedal reading function.

Graphite Furnace System

- **Heating Capabilities:** Longitudinal heating up to 3000°C, with rapid temperature increase.
- **Temperature Control:** Dual-mode control options with high precision ($\pm 1\%$) and automatic positional adjustments.
- **Observation System:** Includes a visual system for monitoring and safe operations.

Software and Safety

- **Comprehensive Safety:** Integrates alarms and safety devices across hardware and software for secure, stable operations.
- **Automatic Fail-safes:** For gas cut-off, abnormal air pressure, ignition failure, and more.

Optional Functional Extensions

- **Graphite Furnace Automatic Sampler:** Independently controlled, with multi-stage cleaning and accurate injection.
- **Flame Automatic Sampler:** Designed for flexibility with a 70-sample tray.
- **Oxygen-Rich High-Temperature Flame:** Allows for high-temperature element analysis without hazardous chemicals.
- **Hydride Vapor Generator:** Expands analytical scope with hydrogenation methods.
- **Audit Trailing Software:** Ensures compliance with electronic signatures, user permissions, and traceability for audit standards.

TECHNICAL SPECIFICATIONS

- Main Unit: 1020mm×530mm×500mm(L×W×H), 85kg
- GF Power Supply: 350mm×530mm×430mm(L×W×H), 32kg

- GF automatic sampler: 350mm×250mm×300mm(L×W×H), 15kg
- Flame automatic sampler: 440mm×290mm×440mm(L×W×H), 14kg



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