AA-7003Series

Atomic Absorption Spectrometer

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AA-7003 Series Atomic Abso ctromete

Application

The AA-7003 series atomic absorption spectrophotometer can be widely used in the fields of metallurgy, petrochemical industry, geology, medical science, environmental protection, scientific research, agriculture, disease control, food, material science, quality inspection etc. The AA-7003 series can be used to analyze over 70 elements at both normal or trace levels.

Features:

Advanced Optical System

• The AA-7003 series features a unique suspension design for the optical system. Shaking of the instrument bench or change of the environmental temperature will have no effect on instrument's stability. (Patent no. ZL200620023296.X)

• First domestic manufacturer to use an 1800 lines/mm diffraction grating, which increases resolution and energy efficiency.

• A single beam and short optical system allows for a strong signal and very low detection limits for elements such as As, Se among others.

• Carefully designed deuterium lamp background deduction and self-absorption background deduction, results in more accurate calibration.

• The fully automatic six-lamp rotating turret is completely controlled by a computer. 1 "click" operation would allow automatic selection of lamp, wavelength scanning, wavelength positioning, energy balancing, etc.

Integrated Design

• The AA-7003 features an integrated flame and graphite furnace design that contains the optical system, atomizer, graphite furnace power supply and electronics all in one unit. It is first such design and one of the most compact AAS in the world. (Patent No. ZL200620023298.9)

• Optimized lamp power supply technology to prolong lifetime of element lamps.

Automated Switch between Flame and Graphite Furnace

• Features automated or manual switching between flame and graphite furnace in less than 2 seconds.

• Optics do not need to be adjusted between switches. (Patent No. ZL200620023297.4)

Reliable Safety System

• Safe and reliable control alarm devices to ensure over-current protection for hollow cathode lamps.

• Under-pressure protection of combustion gas/protection gas, leakage alarm of combustion gas, over-heating protection for graphite furnace and protection against abnormal flame.

Flexibility

• Optional HG-01 hydride generator that utilizes a heated ceramic tube to realize trace analysis of As, Pb, Se, Hg, Bi, Sb, Sn, Te with high sensitivity.

• Optional graphite furnace autosampler that allows for automated preparation of standard solutions and automated analysis.

• Flame autosampler (optional).
• Optional Nitrous Oxide/Acetylene selection system allows for analysis of more than 30 high atomization temperature elements.

High Degree of Automation

• Automatic wavelength positioning, automatic slit switching, and automatic
• optimization of lamp current and gain. All of these operations can be completed within 40 seconds.
• The six lamp rotating turret is controlled by a computer for automated element lamp selection, which allows for automated analysis of up to six elements in sequence.
• Automatic flame ignition, automatic control of the combustion gas flow rate, and automatic gas leakage alarm

Technical Specifications

Optical System

Wavelength range:	190~900 nm	Spectral bandwidth:	Automatic switching between 5 levels: 0.1, 0.2, 0.4, 1.0, 2.0 nm
Mono-Chromator	C-T Grating Mono-Chromator	Grating:	1800 lines/mm
Wavelength repeatability:	≤0.1 nm	Wavelength Indication Error	±0.2 nm
Blaze Wavelength：	: 250 nm	Baseline Stability	≤0.004Abs/30min（Dynamic） ≤0.002Abs/30min（Static）
Spectral Bandwidth Deviation	The measured halfwidth of line is ±0.02nm when the spectral bandwidth is 0.2nm	Resolution	Manganese double line (279.5 nm and 279.8 nm) can be separated, and trough-to-peak ratios is <30% when the spectral bandwidth is 0.2nm

Flame Method

Benchmark Concentration of Cu:	≤0.02 μg/mL/1%	Detection Limit:	≤0.005 μg/ml
Precision RSD:	≤1.0%	Burner：	Interchangeable full titanium burner of 50mm and 100 mm
Position Adjustment：	Adjustable height and angle. Flame to hydride can be switched in less than 1 minute		

Graphite Furnace Method

Benchmark Concentration of Cd	5.0×10^{-13} g	Detection Limit	1.0×10^{-12} g

Temperature Range:	Room temperature to 3000 ℃	Precision RSD:	≤2.0%
Temperature Control Program	Max 20 step temperature program. 3 modes of temperature	Heating Modes:	Max power heating and optical control rapid heating (optional)
rise:	step, slope and flat. Max Power Temperature Rise Rate: ≥2000 ℃/s		

Main Unit with Integrated Graphite Furnace Power Supply

Dimensions:	880 (L) x 540 (W) x 450 (H) mm, 125 kg	Power Supply:	~220 V 50 Hz single phase,
main unit power：	200 W,	graphite furnace power	4 KW

The AA-7003 series of the simplified table

Model	Explanation
AA-7003	Flame atomizer, graphite furnace atomizer
AA-7003F	Flame atomizer
AA-7003G	Graphite furnace atomizer

HG-01 Hydride Generator

The HG-01 uses a peristaltic pump for sample injection, and has an atomizer consisting of a ceramic electric heating tube heating a quartz tube. It allows for ultra low trace analysis of the eight elements (As, Se, Hg, Pb, Bi, Sb, Sn and Te), which have relatively low sensitivity using the atomic absorption method. The instrument is fast and easy to operate. It is compatible with any AAS using the hydride-atomic absorption method.

Features

• Samples are continuously pumped by 3 channels using a peristaltic pumps. Injection volume is 1~5 mL.

• Uses Tygon wear-resistant durable pump tube. The life span of these pump tubes can be as long as 500~1000 hr.

• Using a uniquely designed ceramic electric heating tube, the HG-01 is oxidation-resistant and expels no waste. It can withstand temperatures of up to 1000 ℃ for a many hours with no damage to the quartz tube.

• Temperature control is fast and accurate. The temperature range is 100~1000 ℃ with an accuracy of ±2 ℃.The optimal atomizing temperature can be quickly reached and precisely controlled.

• Compact design and easily mounted on the AAS in the flame

nebulizer base position.

AS-600 Flame / Furnace Auto-Sampler

• At most 133 sample holders including 5 holders used for solutions.Many kinds of sample plates and both plastic and quartz injection tubes are compatible.
• Without moving the autosampler, automatic sampling can be switched from flame to graphite furnace or vice versa. Manual injection can be processed without removing the autosampler.
• Sampling depth and injection depth are software controlled.
• Sampling of tested samples, standard samples and chemical modifiers are all software controlled.
• After solution injection, the software will start the graphite furnace heating program automatically.
• The system immediately enters the automatic cleaning procedure after each injection to prevent pollution of samples. After each injection, the system runs an automatic rinse procedure to prevent samples from being contaminated.
• Automatic concentration and dilution.
• Graphite furnace supports hot injection and reservation function.

AS-500 Auto-Sampler for Graphite Furnace

The AS-500 auto-sampler for graphite furnace is multi-functional with high precision. Using an auto-sampler for graphite furnace analysis will improve analysis accuracy with an RSD of <1%. Automated preparation of solutions at various concentrations and automated addition of chemical modifiers helps analysis work to be more accurate and simple. It also significantly reduces the operator's workload by realizing fully automated graphite furnace analysis.

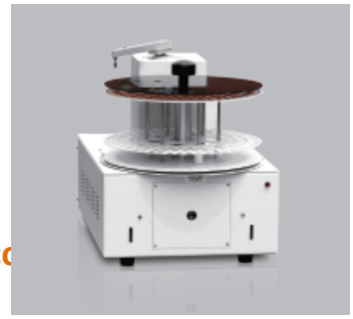
Features

• At most 70 sample holders and 6 25 ml glass holders used for stock solutions, blank solutions and chemical modifiers.
• Software guide directs the operating procedures step-by-step, making it simple and convenient to set up an analysis.
• The calibration curve is automatically created. Up to 20 standard samples of different concentrations can be prepared from a single standard solution. Standards are directly injected into the graphite tube for analysis.
• Accuracy of liquid absorption can be as good as 0.1µL, and it can keep the sample position in the graphite tube unchanged. Accuracy of analysis is 1%(RSD) or better.

• Sampling of tested samples, standard samples and chemical modifiers are all software controlled.
• For the same sample, analysis can be repeated up to 99 times. The volume of sample injection is up to 70µL.
• After solution injection, the software will start the graphite furnace heating program automatically.
• The system immediately enters the automatic cleaning procedure after each injection to prevent pollution of samples. After each injection, the system runs an automatic rinse procedure to prevent samples from being contaminated.
• Automatic concentration and dilution.

AS-200 Auto-Sampler for Flame

• 123 positions for samples, 6 positions reserved for standard



solution, blank solution, etc.
• The injection time and freguency can be set automatically through software.
• Automatic rinse.

EW-900CH Water Cooling System

The EW-900CH Water Cooling System is designed for various industrial applications with a strong protection and alarm system. It has the unique option of a purification configuration that ensures pure water is produced. This system provides a variety of alarms and output connections, along with a water level alarm, over temperature alarm and water flow alarm. All configurations can be customized according to the user's requirements.

Features

• Large volume open tank, easy to clean, easy to do water bath testing.
• Multiple alarm protection, including water level alarm, water flow alarm and over temperature alarm
• Optional configurations for water purification
The first option: full stainless steel water pipelines;
The second option: built-in filtering devices to ensure water quality.

EW-320AC Air Compressor

• The EW-320AC is a double cylinder piston compressor that is stable, reliable and oil-less.
• It uses three filters(two filters for gas inlet and one filter for gas outlet) to ensure that the gas output is pure.
• Provides clean and dry compressed air with constant pressure for atomic absorption spectrometers.

Model	Gas Flow	Pressure Range	Dimensions	Features	Note
EW-320AC	20L/min	0.005～0.3 Mpa	400(W)×300(L)×635 (H)	Quiet oilless dual piston compressors	Manual dra