EWAI Products

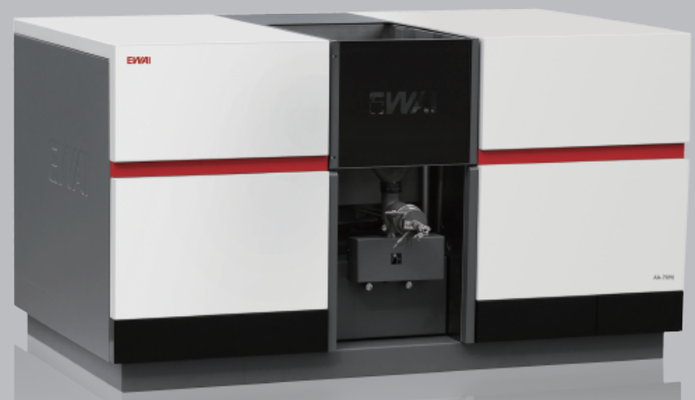
GC-MS 3100/3200 Gas Chromatograph-Mass Spectrometer (Quadrupole)
GCxGC TOF MS 3300 Comprehensive Two-dimensional
Gas Chromatograph – Time of Flight - Mass Spectrometer
GC-MS 3110 Mobile Gas Chromatograph-Mass Spectrometer
GC-4000A/4100 Series Gas Chromatograph
EW-4400 Portable PID Gas Analyzer
LC-5510/5520 High Performance Liquid Chromatograph
IC-2800 Ion Chromatograph
ICP-1000II Automatic ICP Spectrometer
ICP-7700 ICP Spectrometer
AA-7001/7003/7020/7050/7090 Atomic Absorption Spectrometer
AA-7003M/7030A Medical Atomic Absorption Spectrometer
AF-7500/7500B/7550 Atomic Fluorescence Spectrometer
XD-8010 Energy Dispersive X-Ray Fluorescence Spectrometer
XF-8100 Wavelength Dispersive X-Ray Fluorescence Spectrometer
CA-9000 Mobile Inspection Lab
Coal Mine Analyzers
Data Processing Workstations
LIMS Laboratory Information Management System

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AA-7090

Atomic Absorption Spectrometer
EAST & WEST ANALYTICAL INSTRUMENTS , INC.

Simply Precise

Founded in 1988 by two senior engineers, East & West Analytical Instruments, Inc. (EWAI) has over 30 years of experience in providing a wide range of analytical solutions to fulfill our customer’s needs.

From the beginning, innovation has been at the core of our business. With the introduction of the GC-MS 3100 in 2007, we became the first domestic manufacturer to produce a commercial GC-MS system. Through continuous focus on research and development, we have expanded our product line to include GC, GC-MS, LC, AAS, AFS, and XRF. Along the way, we have collected more than 30 patents and more than 100 awards and certificates. Our quality products provide solutions for applications ranging from mining to food safety.

EWAI is dedicated to maintaining a high quality of products and after-sale services. We have more than 30 branches in China and distributors in more than 20 countries. With our large and well trained service team, we can guarantee excellent service regardless of your location.

In 2013, EWAI and GBC Scientific Equipment Pty. Ltd. of Australia entered into a strategic partnership. This acquisition is a major step forward in our quest to become a diverse and internationally recognized manufacturer in the global analytical instruments industry. GBC adds to EWAI’s already long product line with a variety of products and solutions including AAS, UV-Vis, ICP,

- ISO9001 Quality Management System Certificate
- 21315 Quality Credit AAA Grade Certificate
- Top Ten Chromatography Instrument Awards from BCEIA
- Gold Award from BCEIA
- The Designated Enterprises for Coal Mine Safety Equipment
- The Most Popular Manufacturer Award in the instruments and equipment industry
- ISO14001 Environmental Management System Certificate
- CE Certificate
- Top Ten Spectroscopy Instrument Awards from BCEIA
- Innovation Award
- Beijing Science and Technology Award
- Scientific Instruments Product Excellence Award



High Tech Enterprise Certificate


ISO9001


ISO14001


Innovative Design Red Star Award

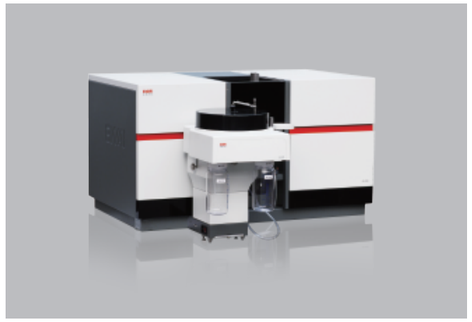


National Important New Product

AA-7090 Series Atomic Absorption Spectrophotometer

Application

AA-7090 is the fifth generation of atomic absorption spectrophotometer. It uses horizontal heating and vertical Zeeman background correction and continuous variable magnetic field intensity technology, which improves the background performance remarkably.



The AA-7090 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-7090 series can be used to analyze over 70 elements at both normal or trace levels.

Features

Advanced Optical System

• The AA–7090 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 the 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 GBC longitudinal Zeeman and deuterium lamp background reduction results in more accurate calibration.

Integrated Design

• The AA–7090 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)
• Flame atomizer and graphite furnace atomizer are designed in parallel, with short optical path, less optical energy loss and high sensitivity.

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 of graphite furnace and protection against abnormal flame, and so on.


A patent for our unique optical system suspension design


An atomic absorption spectrometer


A patent for our flame/graphite furnace workhead swithching design


Graphite Furnace Viewing System

Unique function design, relaxed work experience

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.
• AA–7090 works with EWAI's furnace autosampler that allows for automated preparation of standard solutions and automated analysis.

High Degree of Automation

• Automatic wavelength positioning, automatic slit switch and automatic optimization of lamp current and gain. All of these operations can be completed within 40 seconds.
• The eight lamp rotating turret is controlled by computer for automated element lamp selection, which allows for automated analysis of up to eight elements in sequence.
• Automatic flame ignition, automatic control of the deuterium lamp and Zeeman, and automatic switch of graphite furnace power supply.
• The software intelligently identifies the power frequency and automatically matches it.

Multi–Element analysis

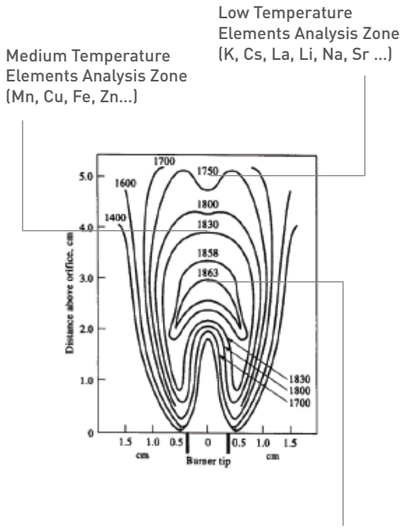
• Automatic multi–element analysis: After editing method, in cooperation with AS–600L autosampler, the instrument can automatically set method parameters, including automatic wavelength selection, automatic slit setting, automatic element lamp position adjustment, automatic deuterium lamp switch, automatic Zeeman switch, automatic atomizer switch, and so on.
• Multi–element analysis in same project: Multiple elements can be established in same project, analysed according to sequence, and the comprehensive report can be printed out.

Two background correction modes

The operator can select between Zeeman effect, and deuterium lamp background correction modes based on the difference requirements. 0.6T–1.1T continuously adjustable in Zeeman background correction magnetic field, effectively reducing the effect of reversal effects on analytical sensitivity. After deuterium lamp is added into the optical paths automatically, the position of the deuterium lamp spot can be optimized by the adjustment mechanism, in concentric with the element light spot, the background correction result will be more accurate.

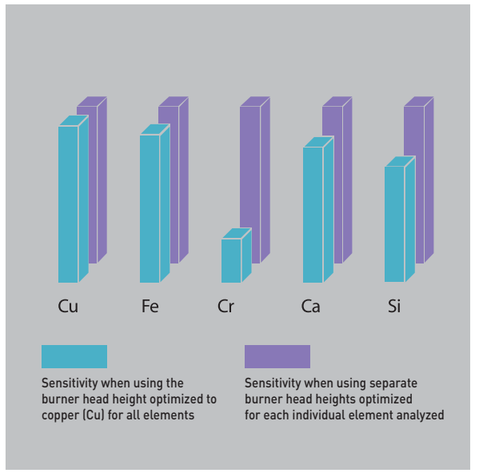
Automatic Burner Head Height Adjustment

Automatically find the optimal flame height by software for best analysis condition.



Automatic Burner Head Height Adjustment

Height of burner head, stored as a parameter in test method; to ensure each element in multi–element flame analysis to obtain best sensitivity without operator manual intervention. Following figure shows the comparison of sensitivity (purple) obtained by optimizing the respective burner head's height for each element and the sensitivity (cyan) obtained by optimizing only for Cu element.



Super lamp power supply

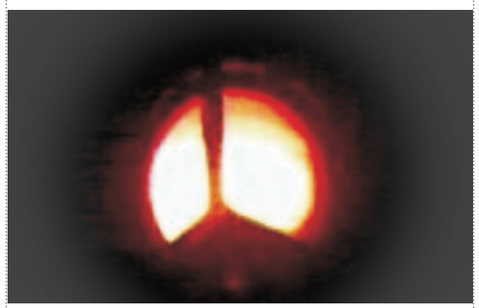
Super lamp is specially designed ultra–high–intensity HCL; to provide stronger light intensity. For some elements (such as As, Se, Cd, Ni and Pb), super lamp can significantly improve detection limit, sensitivity and linearity of measurement. Configurable up to 4 super lamp power supplies for AA–7090.

Coded lamp recognition

Simply plug coded HCL into lamp holder; software could perform automatic lamp type and lamp position recognition. This eliminates potential error when inputting HCL info.

Graphite furnace viewing system

Graphite furnace viewing system, utilizing online camera, performs real–time observation on flame or graphite furnace, highly valuable in graphite furnace method development. Whole analysis process from sample injection to atomization can be observed real–time by operator; helpful to optimize parameters setting in stages of sample desolventation, drying and ashing; to obtain repeatable accurate results.



Graphite furnace gas saving mode

Upon analysis completion, instrument automatically turn off protection gas, then turn it on automatically in next analysis; maximizing the protection gas usage efficiency. Can double gas usage time, and reduce instrument operating cost.

Excellent Graphite Furnace System

Advanced technology with transverse heating, longitudinal Zeeman background correction

• Compared to horizontal Zeeman effect graphite furnace design, the longitudinal Zeeman effect graphite furnace doesn’t require polarizer in optical path; doubles up light intensity reaching the detector, results in higher sensitivity and better calibration linearity.
• Transverse graphite furnace heating method allows higher temperature in all area within graphite tube and greater uniformity in temperature distribution; ensures high efficiency & uniformity in sample atomization, and guarantees data with high precision.

Well–designed transverse heating graphite tube

• Two wings of graphite tube have greater mass, can conduct heat in greatest extent to the sample area located between those wings. This is both the highest temperature and the most uniformly heated area in graphite tube.
• Maximum heating rate of 2500 ℃/s guarantees optimal atomization conditions for high temperature elements.
• Graphite furnace clamping assembly with pivot structure, equipped with safety interlock device, to ensure safe and error-free graphite furnace operation.
• Graphite tube has characteristics of unidirectional fit and automatic sample injection port centering; ensures automatic alignment of the graphite tube, simplifies the cleaning and replacement of graphite furnace.

Unique variable magnetic field strength

Advanced variable magnetic field strength technology, with 0.1T increment from 0.6T ~ 1.1T; allows to achieve the best magnetic field strength for each element, to obtain the best background correction effect while ensuring its best sensitivity. Once optimal magnetic field strength is selected, it remains unchanged throughout the measurement process. Operator can set the optimal magnetic field strength for each element, to maximize Zeeman effect and improve spectral interference in elemental analysis.

Dual protection gas paths

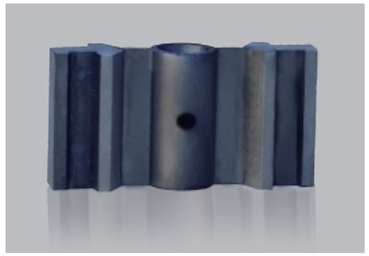
Dual protection gas paths in graphite furnace, can be used simultaneously, separately, or as programmed.

Significantly increased maximum injection volume

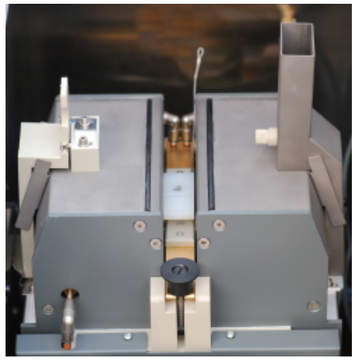
Max graphite furnace injection volume up to 70□L, beneficial to multiple injections & lower concentration analysis.

Smart frequency conversion

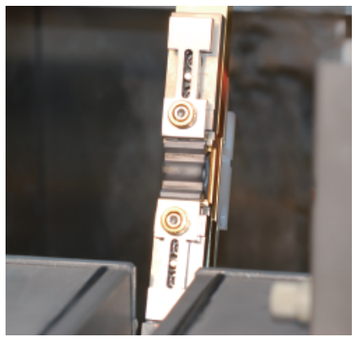
Intelligent identification of power supply frequency by software, automatic matching to the operating frequency. Especially suitable for power supply with unstable frequencies or for power grid at other frequencies.



Easy to detach or install, self–aligning graphite tube

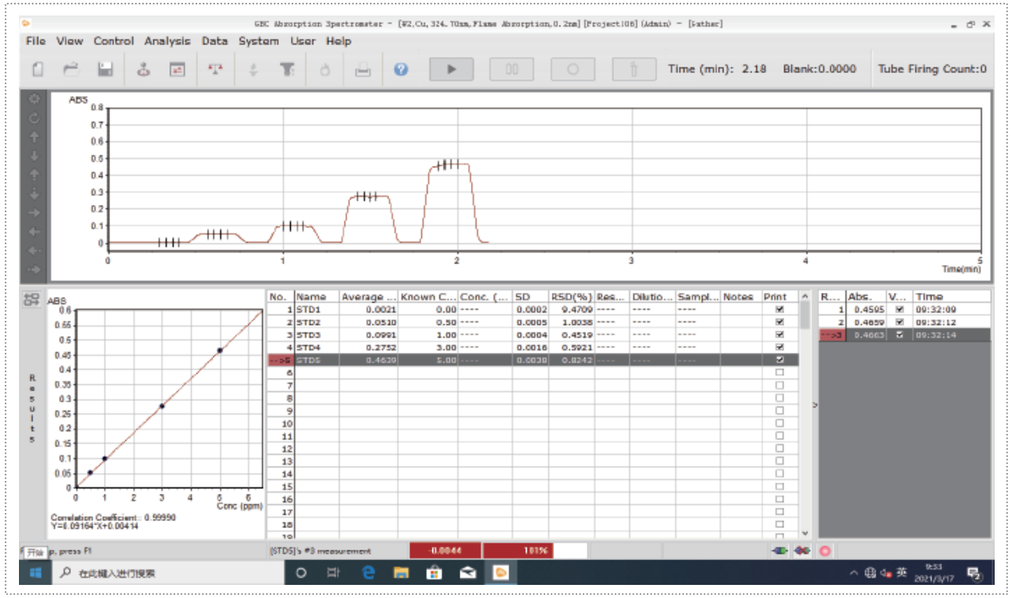


Graphite furnace components



Transverse heating ensures uniform atomization of whole sample. Sample injected into the highest temperature region between graphite tube wings; both wings have large thermal mass, therefore with maximum heat conductivity, would heat the sample uniformly.

Powerful Automated Data Processing Workstation, Meets GMP Certification Requirements



• User friendly operating interface

Window based operating platform, supports multiple languages, e.g. English, Korean, etc; can obtain analysis report quickly, easily.

• Instrument adopts network port communication, allows remote transfer of instrument data

• Powerful sample analysis functions and fault–tolerant processing, flexibility to modify curve fitting equation

• Report printing function

Flexible report printing function, to print report according to user settings.

• Data management functions

Realize back–up function for history management and related follow–up processing, with functions such as access control, permission allocation, audit trail, electronic signature, and backup recovery.

• QA/QCcontrol function

Automatic judgement if analysis result is appropriate by software. If out of range, system would automatically re–tests according to the set requirements. Its QA / QC functions mainly include: standard deviation (SD) detection, relative standard deviation (RSD) detection, correlation coefficient detection, QC detection, baseline drift (sensitivity correction) detection, and sample upper limit detection.

• Instrument control functions

Includes: automatic HCL selection, automatic wavelength scanning, automatic slit switching, automatic lamp current setting, etc.

• Condition monitoring function

Real–time dynamic monitoring of each instrumental components’ working status. Flame method: monitoring burner head type (air– acetylene or nitrous oxide– acetylene burner head), monitoring water seal level, monitoring ON–OFF and pressure of fuel gas & oxidant gas, monitoring fuel gas flow rate, acetylene leaking alarm etc. Graphite furnace method: overcurrent protection, monitoring water temperature & water flow rate, monitoring protection gas pressure, etc.

• Light on time management function

Record HCL usage time automatically.

• Graphite furnace use frequency monitoring

Technical Specifications

• Optical system

Wavelength range：（190～900）nm
Monochromator：C-T grating monochromator
Wavelength repeatability：≤0.05nm
Blazing wavelength：250nm
Resolution：better than 0.1nm

Spectral bandwidth：（0.1、0.2、0.4、1.0、2.0）nm,automatic switching
Wavelength accuracy：±0.1nm
Grating line：1800lines /mm
Baseline stability：≤0.003A/30min(dynamic)
≤0.002A/30min(static)

• Flame analysis

Cu characteristic concentration:≤0.02 μg/mL/1%
Precision RSD: ≤0.45%
Position adjustment: optimal adjustment of height and angle, Flame/ Hydride exchange in 1 minute

Detection limit: ≤0.003 μg/mL
Burner head: 50mm and 100mm interchangeable full titanium burner head, nebulizer
Nebulizer: Standard high-efficiency glass nebulizer & full titanium metal nebulizer; high-efficiency nebulizer has efficiency of more than 20%; full titanium nebulizer suits

• Graphite furnace analysis

Cd characteristic amount: 0.5×10^{-12} g
Temperature range: ambient to 2700℃
Temperature program: max 20 steps heating program; 3 modes of step, slope, hold
Power heating rate: ⩾2500℃/s

Cd Detection limit: 1.0×10^{-12} g
Precision RSD: ≤3.0%
Heating mode: power heating
Temperature control precision ≤ 1%
temperature repeatability ≤ 0.5%

• Background correction

Correction method: Zeeman, D2 lamp
Correction capability: In flame analysis using D2 lamp background correction; when background absorption value ~ 1.0 Abs, instrument has > 60 times background correction capability. In graphite furnace analysis using D2 lamp or longitudinal AC magnetic field Zeeman dual background correction method, when background absorption value ~ 2.0 Abs, instrument has > 100 times background correction capability.

• Data Processing

Measurement method: flame absorption method, flame emission method, graphite furnace method, hydride method
Analysis method: linear equation, non–linear equation, standard addition method.
Printing output: Calibration curves, signal spectra, instrument conditions, analysis parameters, and analysis results, can be automatically stored and printed.

• Integrated instrument with built–in graphite furnace atomizer power supply

Dimensions: 1000 mm (L) x 610 mm (W) x 580 mm (H), 150 kg
Power supply: ~ 220V, 50Hz single–phase power supply; instrument 500W, graphite furnace 4kW

HG-01 Hydride Generator

Peristaltic pump injection, electrothermal ceramic heated quartz tube atomizer, capable to perform high–sensitivity ultra–micro analysis for eight elements (As, Se, Hg, Pb, Bi, Sb, Sn, Te) with low sensitivity in AAS. Simple operation, quick analysis, less interference; easily connected with any AAS instrument for hydride–atomic absorption method.

Features

- Peristaltic pump 3–channel continuous injection mode; the injection volume is 1 to 5 mL/min.
- Uses American Tygon wear–resistant long–life pump tube; its lifespan is up to 500 – 1000 h.
- Domestic unique electric ceramic tube heating method; long life, oxidation resistant, pollution free, safe and reliable; even long–term heating at 1000 ℃ won't cause damage to quartz tube.
- Fast heating, temperature range: 100 – 950℃, temperature precision: ± 5℃. Enables precise selection of optimal atomization temperature.
- Compact structure, small and nice look. Conveniently installed on the shaft seating of AAS nebulizer.



AS-600 Integrated Flame Graphite Furnace Autosampler

- Hold up to 133 sample vials (including 5 reagent vials). Supports various type of sample trays and plastic and quartz sample vials.
- Allows automatic injection on flame graphite furnace, no need to move autosampler when switching method, once installed. When not in use, can still inject sample manually without disassembling autosampler.
- Control of sampling depth and injection depth via software.
- Fully automatic computer–controlled operation, from taking sample to taking different standards and chemical modifiers.
- After whole solution is injected, graphite furnace heating program would start automatically.
- After each injection, system would immediately runs automatic cleaning program, to eliminate sample contamination.
- Automatic dilution function.
- A sample can be analyzed up to 99 times, maximum injection volume is 70 μL.



EW-320AC Air Compressor

EW-320AC oil–less air compressor, supplies clean, oil–less, dry compressed air. It has small size, low noise, stable & reliable. It uses a dual cylinder piston–type machine, unique cold water separator, combined with advanced components such as stainless steel gas storage tanks, egg nest typed sound–absorbing sponges, improving its performance and reliability.



Features

• Dual cylinder piston compressor, smooth and reliable operation, clean and oil–free
• Adopts three–stage filtration (two–stage air inlet filtration and one–stage air outlet filtration), for better filtration, clean air.
• Dedicated to provide clean, constant pressure, dry compressed air for AAS.

型Model	EW-320AC
Air flow rate	20L/min
Pressure range	0.005～0.3 Mpa
Dimensions (WxDxH) mm	400×300×635
Feature	Oil–less dual piston compressor, low noise
Note	Remove water manually

EW-2H cooling water circulator

EW–2H chiller, an advanced laboratory cooling circulator designed for analytical instruments. With nice appearance, small footprint, using advanced hot gas bypass PID control technology, high temperature control precision, better cooling effect.



Features

• Adopts PID intelligent temperature control setting function; precise temperature control
• Standing design, nice appearance, small size.
• Self–running at startup, easy to operate.
• Optional water flow, high and low temperature alarm signal

Model	EW-2H
Output temperature range	5 ~ 35℃
Temperature control precision	±0.1℃
Reservoir volume	16L
Alarm	Water level alarm, over–temp alarm, high low pressure alarm
Weight	66kg
Dimensions (W x D x H)	360 × 565 × 860mm

AAS Family Members



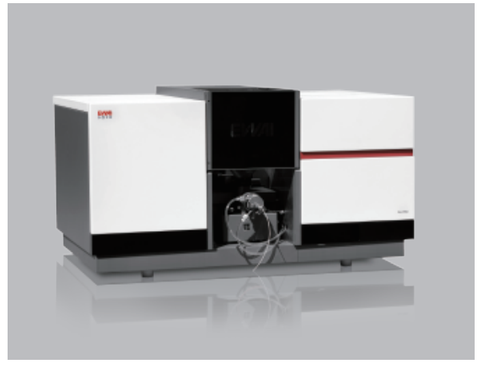
Model AA-7001 : manual type



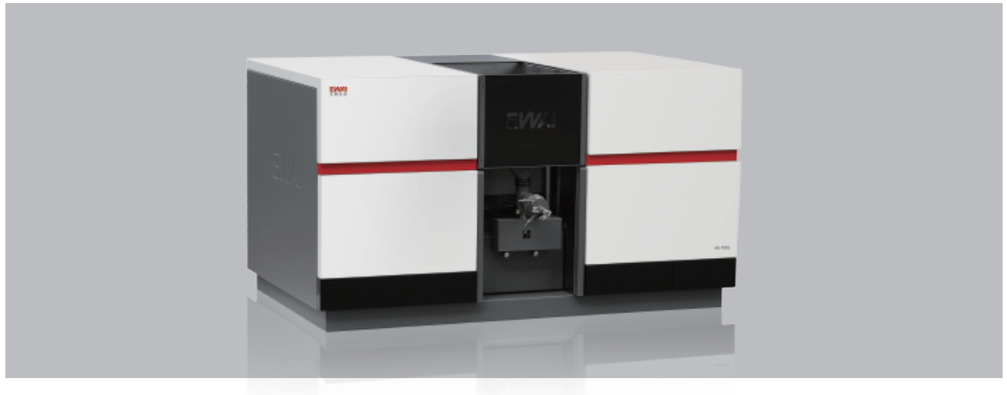
Model AA-7003 : semi-automatic type



Model AA-7020 : Automatic type



Model AA-7050 : Full functions type



Model AA-7090 : Zeeman type