

ICP 3060

Sequential Inductively Coupled Plasma Emission Spectrometer



EPC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

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- ▣▣▣ Wide Application
- ▣▣▣ Rapid Analysis
- ▣▣▣ Low Detection Limits



▣▣ Application

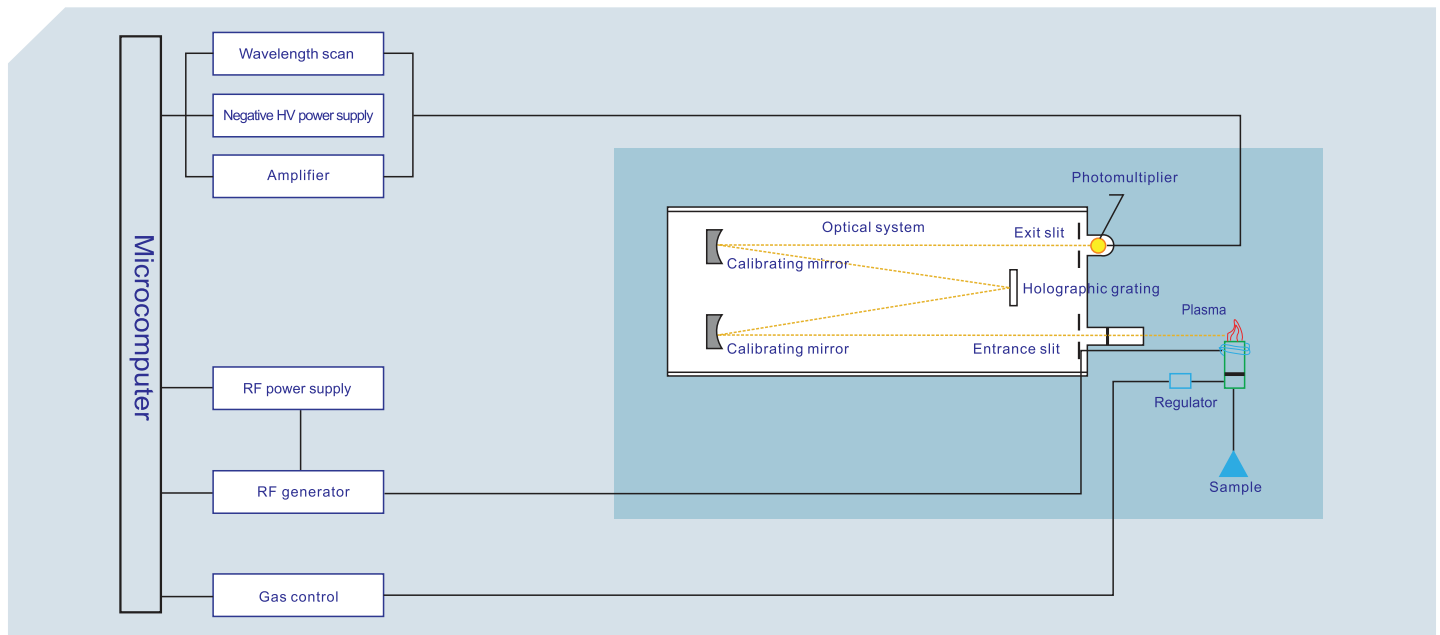
- Rare earth metal
- Silicon materials, magnetic materials processing industry
- Metallurgical industry: analysis of impurity elements influencing the quality of metal materials water quality control
- Geology,, mineral
- Petrochemical: measurements of more than 30 elements in crude oil
- Pharmacy, hygiene, agriculture, enviromental protection, commodities and food industry

▣▣ Strong And User-friendly Software

The professional software provide excellent features and multi access to functions as follow:

Data managemnet, quantitative and qualitavtive analysis, test parameter setting, one button report generation, background and interference correction, fast calibration mode, instrument status indication, and online self diagnostic.

▶▶ Instrument Structure Diagram



▶▶ Features

- Over 70 elements can be measured
- Fast analysis, 5-8 elements per minute
- Excellent detection limits, at ppb level for most elements
- Wide linear dynamic range, reaching 6 orders of magnitude, from ppb to percentage
- Lower gas consumption; Each argon gas cylinder can be used for 8 hours.
- Anti-Blooming facility
- A high precision 12 roller, 4 channel peristaltic pump, with speed adjustable according to the demanding, provides smooth, stable rate consistent with the drain rate, which is adjusted as per required to stabilize the introduction system.
- In the sample introduction system, the carrier gas, plasma gas, auxiliary gas are controlled through the advanced mass flow controller (MFC), features continuously adjustable and stable, etc... which ensures the stability of the introduction system and the foundation for the stable light source
- The sample introduction system is efficient and stable, equipped with various nebulizers and spray chambers, it can also be equipped with high solids nebulizer, hydrogen fluoride-resistant nebulizer, etc. as per required. Besides, the operation, and further improves the analysis efficiency.
- Start up time < 28 minutes from cold dead start

▶▶ Humanized Software Design Makes Operation Easier And Simpler

One-button plasma ignition

by simply click the button 'inflammation' in software, the plasma can be ignited immediately. (as figure 1)



Figure 1

Powerful graph diagnosis function

The 'graph diagnosis' function provides information on instrument status and analysis progress. (as figure 2)



Figure 2

Multi-element analysis

After selecting elements and setting measuring parameters, instrument will measure automatically with results directly display. (as figure 3)



Figure 3

Enhanced database management

The database contains several thousands of spectral line, where users can choose freely based on application method. (as figure 4)



Figure 4

Sequential Scanning Inductively Coupled Plasma Emission Spectrometer

►► Summary

ICP 3060 Sequential Inductively Coupled Plasma Emission Spectrometer is designed to measure major, minor and trace elements in various samples with outstanding performance. It was widely chosen in different industries for its superior optical resolution, high level of automation, reliable free running RF system as well as excellent analytical precision and accuracy. ICP 3060 was widely applied in various fields ranging from rare earth, geology, metallurgy, chemistry, environmental protection, clinical medicine, petroleum products, semiconductors, foods, biological samples, criminal science, to agricultural research, etc.

Advanced structure, optimized details make instrument accurate, stable and reliable

- Advanced optical design with a fully illuminated holographic grating, with spectral interference correction and high light throughput for improved detection limits
- Wide wavelength range : 160nm to 500nm with 3600 line grating
: 160nm to 800nm with 2400 line grating
- Computer controlled plasma platform optimizes the viewing position to reduce interferences, improve SNR and minimize background emissions
- Software controlled flow of carrier gas, plasma gas and auxiliary gas provide real time monitor as well as highly stability of flux
- Various types of torches, nebulizer as well as spray chamber are optional
- Choice of auto sampler greatly improves efficiency
Sample waste drained by peristaltic pump ensures stable sample flow rate; Fast pump mode improves productivity
- The brand new robust free-running, 27.12 MHz RF generator that delivers unsurpassed performance
- Rapid and accurate automatic coupling system ensures the ultimate power transfer efficiency and stability

►► Specifications

Solid State Power	Detection system
Frequency:27.12MHz	CID
Frequency:<0.05%	Dynamic Range Greater than 6 orders of magnitude
Matching: Automatch	
Output power:800W~1600W, continuously adjustable with powereffeciency more than 65%	
Output power stability:≤0.05%	
Induction coil:ID 25mmx3, equipped with three concetric quartz torch tubes of ED 35mm (ID: internal diameter; ED:external diameter)	
Spray chamber: Scott double pass spray chamber	

Monochromator		Technical Specifications	
Optical type: turner		Suitable sample content range	Liquid samlee:0.01ppm~several thousands ppm
Focal length: ≥400mm			Solid or powder sample:0.001%~70%
Resolution	0.008 nm	Repeatability: short-term stability, RSD≤1.5%	
		Long-term stability:RSD≤2%	
Grating specification	huge holographic grating with 3600L/mil or 2400 l/mil and 80mm x 100mm of ruling area	test speed:5~8 elements/min	
		Limits of detection (LOD, µg/L) for typical elements:1ppb~10ppb	
Wavelength range	195~500 nm for 3600 line grating	Machine Size	
	195~800 nm for 2400 line grating	Desktop, 1.5m x 0.8m x0.8m	

►► Working environment

Item	Description
Temperature for storage and transportation	15°C-25°C
Humidity for storage and transportation	≤70%
Power stability	220± 10 V 50-60Hz
Humidity	≤70%
Temperature	15°C-30°C

►► Other accessories

Windpipe	Voltage stabilizer
Gas pressure regulator	ICP 3060 power cable
Water cooling system	Copper cable for ground
Sampling system include nebulizer, spray chamber, plasma torch	

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Implementing ISO9001 international quality certification system

Detection limits for typical elements (here λ refers to wavelength) ($\mu\text{g/l}$):

Element λ (nm) LOD	La 408.672 < 3.0	Ce 413.765 < 5.0	Pr 414.311 < 5.0	Nd 401.225 <5.0	Sm 360.946 < 10.0	Al 396.152 < 5.0	Zr 343.823 < 5.0	Ag 328.068 <3.0	Sr 407.771 <1.0	Au 242.795 <5.0
Element λ (nm) LOD	Eu 381.967 <1.0	Gd 342.247 <10.0	Tb 350.917 <3.0	Dy 353.170 <3.0	Ho 345.600 <3.0	Pt 265.945 <5.0	Pd 340.458 <5.0	Lr 224.268 <10.0	Rh 343.489 <10.0	Ru 240.272 <5.0
Element λ (nm) LOD	Er 337.271 <3.0	Tm 313.126 <3.0	Yb 369.419 <1.0	Lu 261.541 <3.0	Y 371.030 <1.0	Ba 455.403 <1.0	Cr 267.716 <5.0	Sb 206.833 ≤ 15	Bi 223.061 ≤ 10	Hg 253.652 ≤ 15
Element λ (nm) LOD	Sc 335.373 <1.0	Ta 226.230 <5.0	Nb 313.340 <5.0	Mn 257.610 <3.0	Mg 279.553 <1.0	Pb 220.353 ≤ 15	Ga 294.364 ≤ 10	Se 203.985 ≤ 10	Sn 242.949 ≤ 10	Te 214.281 ≤ 10
Element λ (nm) LOD	B 249.773 <10.0	Zn 13.856 <3.0	Co 228.616 <3.0	Si 251.611 <10.0	Os 225.585 ≤ 1	Ta 226.230 ≤ 5.0	Th 283.730 ≤ 10	Tl 276.787 ≤ 30	Re 227.525 ≤ 5	Ge 209.426 ≤ 15
Element λ (nm) LOD	Ni 232.003 <5.0	Cd 226.502 <3.0	Fe 239.562 <3.0	Ca 393.366 <1.0	Mo 281.615 <5.0	W 207.911 ≤ 10	Se 3.7.985 ≤ 30	Li 670.784 ≤ 3	Na 588.995 ≤ 20	K 766.490 ≤ 60
Element λ (nm) LOD	V 310.230 <5.0	Be 313.041 <1.0	Ti 334.941 <3.0	Cu 324.754 <3.0						

▶▶ **Regulatory compliances**



▶▶ **Corporate Social Responsibility**

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