KD7 Spark Emission Spectrometer

1. Product Introduction

KD7 full-spectrum direct-reading spectrometer can analyze solid metal samples quickly . Whether from trace elements or high concentration elements, it can analyze accurately and reliably, especially the detection accuracy of non-metallic elements in the deep ultraviolet region is high. Our company has accumulated a lot of experience over the years in the industry and designed this new, superior full-spectrum direct-reading spark spectrometer for smelting industries and laboratories with a large number of metal analysis needs to meet customers' production demand in many industries such as smelting, automobiles, aerospace, and consumer goods.

2. Main technical parameters

Detectable substrate	Fe, Al, Cu, Ni, Mg, Co, Zn, Pb, Ti
Optical system	Pa-Long Groland Circular Full Spectrum Vacuum Optical System
Wavelength range	130~800nm
Grating focal length	401mm
Detector	Research-grade CMOS array
Light source type	Digital light source, high-energy pre-combustion technology (HEPS)
Discharge frequency	100-1000Hz
Discharge current	Maximum 400A
Working power supply	AC220V50/60Hz1000W
Instrument size	610*760*1135mm
Instrument weight	about 120kg
Test time	depends on the sample type, generally around 20S
Electrode type	Tungsten spray electrode
Analysis gap	4mm
Argon flow	The excitation flow is about 3.5L/min, and the standby flow is about 0.1L/min.
Other functions	Vacuum, temperature, software automatic pressure

	control, communication monitoring

3. Optical system

Full-spectrum optical system with Pa-Longge structure

Maximum wavelength range (130~800) nm

Multiple high-performance scientific research-grade CMOS detectors

Resistant to ambient temperature changes

Integrated optical chamber design, CMOS detector ensures optimal shortwave performance

Constant temperature control of the light room, constant temperature is 36℃

4. Sample excitation station

The special design of the excitation room makes the cleaning of the sample room/excitation room more convenient;

The optimized argon gas circuit design ensures effective cooling of the excitation table and the metal dust generated during the excitation process to effectively enter the filter; makes the sample excitation more stable, and greatly reduces the human body's intake of metal dust, which is conducive to protecting the health and safety of operators;

Smaller excitation space makes the argon consume less;

Easy-to-use sample fixture

It has electrode self-purging function, making the electrode life longer and easier to clean the electrode

The excitation pore size of 13mm is more conducive to sample analysis

The open sample excitation table can adapt to the analysis of samples of various sizes and more shapes;

The structural design of the lens part makes it easier to disassemble and wipe the lens, and the argon flushing design can extend the lens cleaning cycle.

5. Digital light source

Pulse synthesis of all digital light sources (programmable pulsed all digital light sources), with a maximum frequency of up to 1000Hz;

High-energy Preliminary Technology (HEPS);

Optimized design of control and power circuits, perfect excitation safety protection functions

Provides the best spark, arc or combined excitation waveform for different analytical targets

Frequency: (100~1000) Hz

Discharge current: Maximum 400 A

6. Data acquisition system

High-performance DSP processor with ultra-high-speed data acquisition and control functions

Single spark acquisition and spectral delay acquisition to achieve more optimized element content measurement

External computer (user's choice)

High-speed Ethernet data transmission

7. Analysis software

Graphical analysis software based on Windows operating system, convenient and practical;

Complete automatic system diagnostic function

Complete database management functions, which can facilitate query and summarize data

Intelligent calibration algorithm to ensure the stability and reliability of the instrument

Complete spectrum line information and interference deduction algorithm to ensure more accurate instrument analysis

The measurement window can display multiple test results, average, standard deviation, and relative standard deviation.

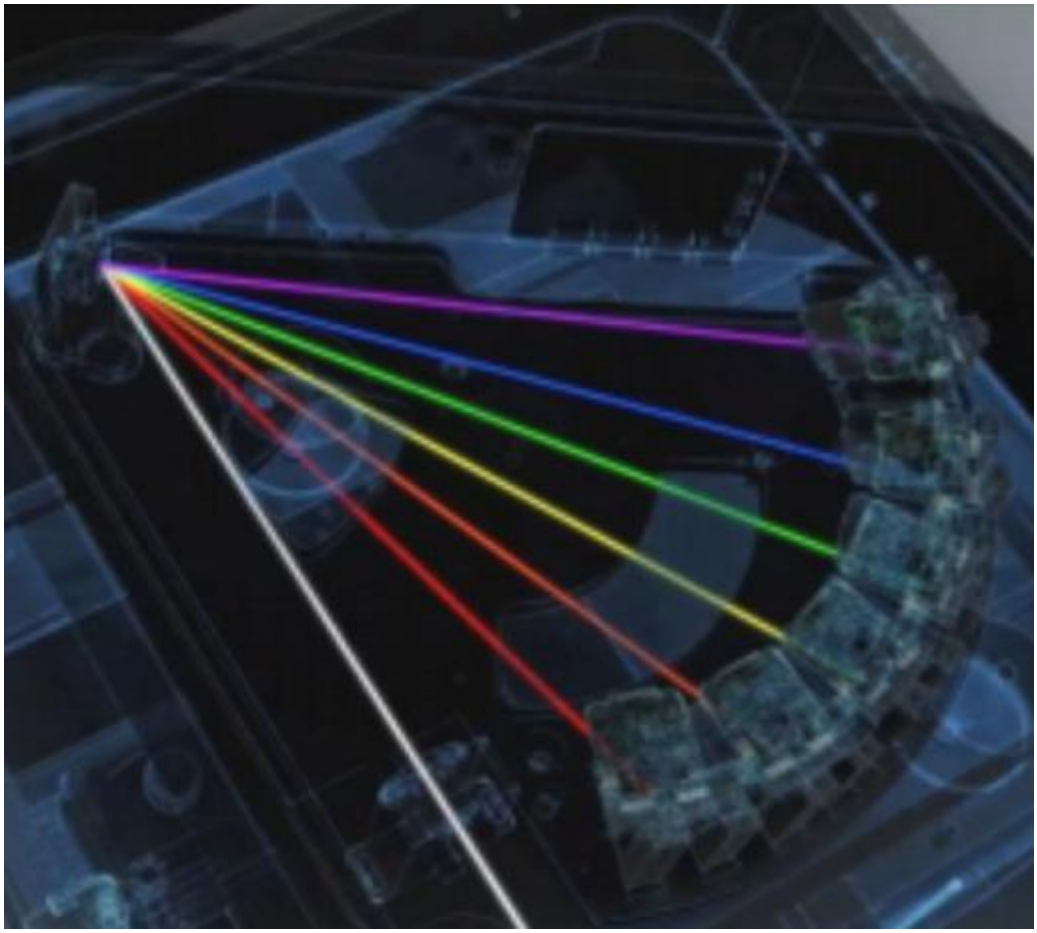
Equivalent element editing function: suitable for numerical analysis such as carbon equivalent, combination control, etc.

Quality control function: It is convenient for customers to check whether the product meets the needs at any time

Reminder function: remind users to clean and stimulate in time according to settings

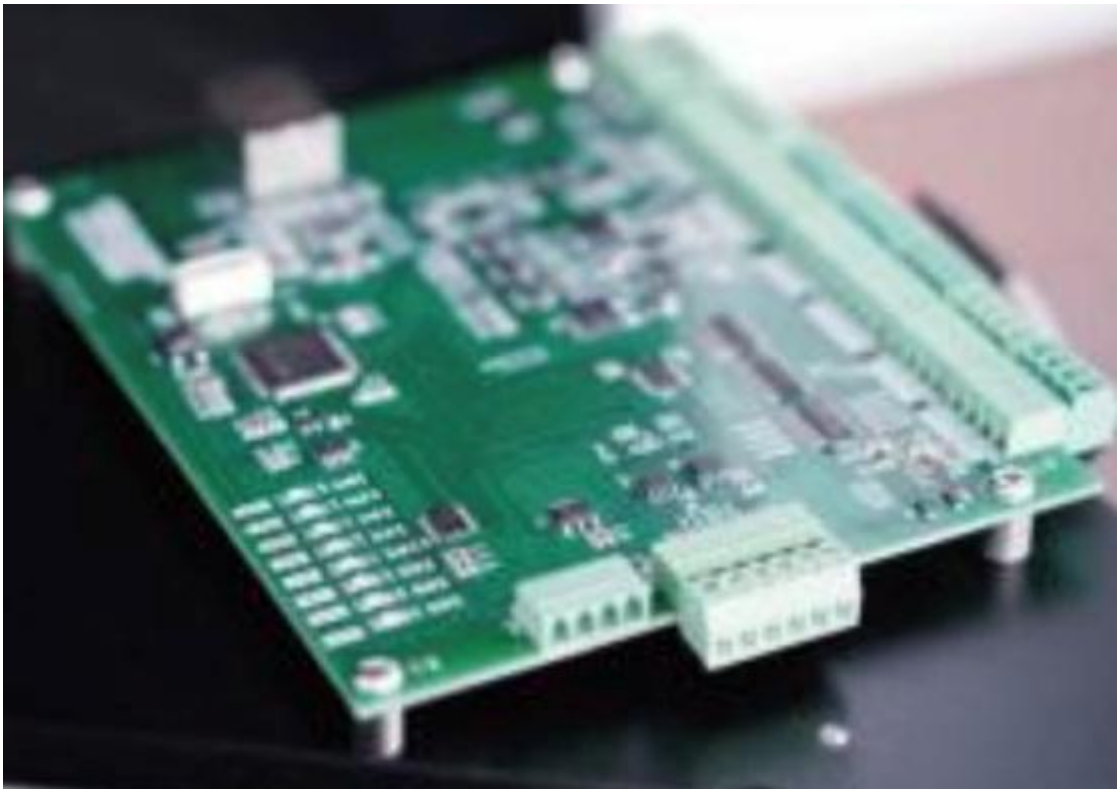
8. High-performance optical system

The arc flame generated during excitation of the optical system is directly introduced into vacuum optics by the lens room, realize direct optical path through, effectively reduce optical path loss; The measurement results are accurate, with excellent repeatability and long-term stability.



9. High-speed data acquisition

The instrument uses high-performance CMOS detection components, with the individual ultra-high-speed data acquisition and analysis function of each CMOS, and can monitoring and control the operating status of modules automatically and real-time, such as the light chamber temperature, vacuum degree, argon pressure, light source, excitation chamber, etc.

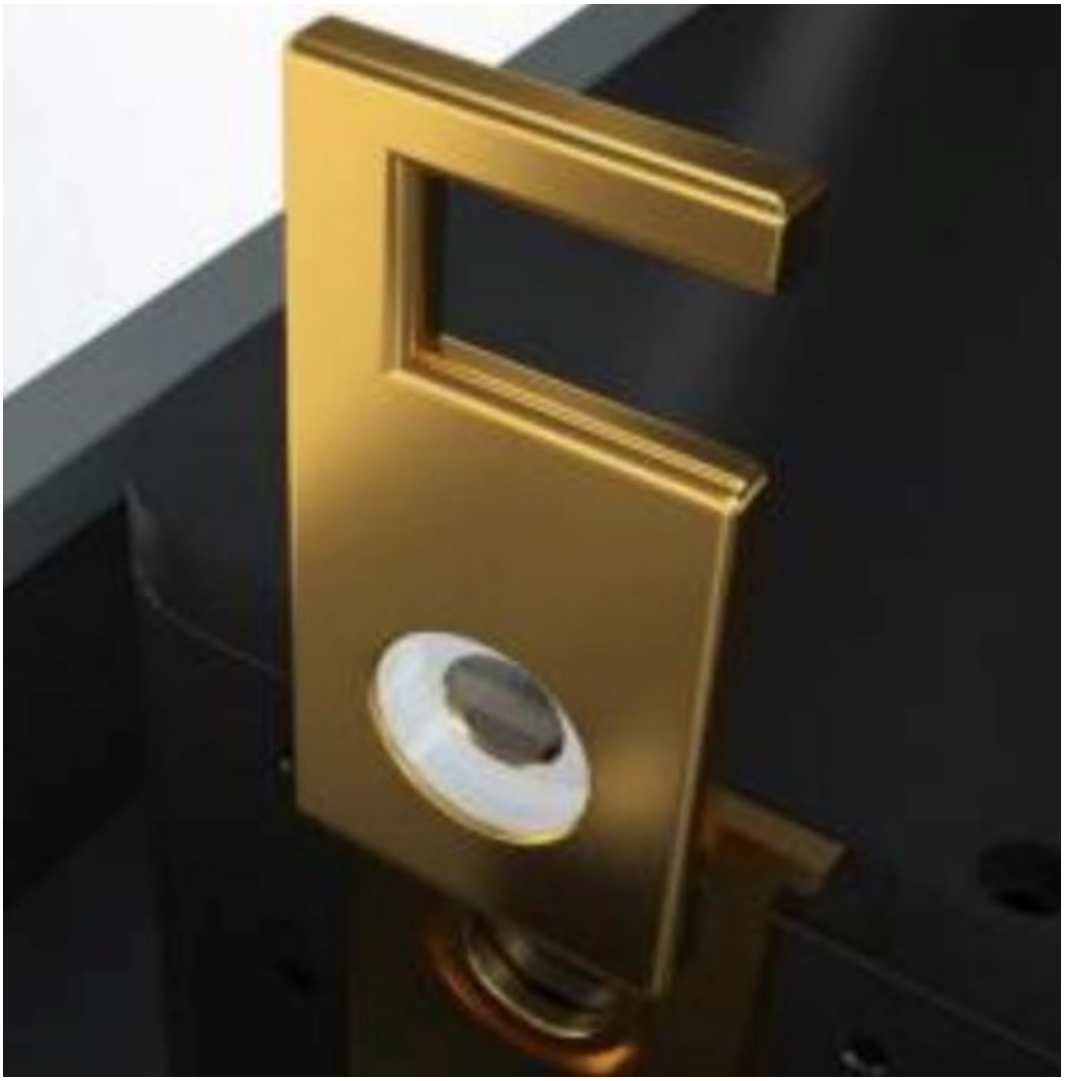


10. Jet electrode technology

Using advanced jet electrode technology internationally, using tungsten electrode material electrodes, an argon jet stream will form around the electrodes in the excitation state, so that during the excitation process, the excitation point will not come into contact with external air, improve the excitation accuracy, and the unique argon gas circuit design greatly reduces the use of argon and reduces the cost of customers.

11. Plug-out lens

The vacuum optical system adopts a unique incident window and is isolated from the vacuum system, and can be operated in the working state of the vacuum system. The optical lens adopts a plug-in lens structure, making daily cleaning and maintenance convenient and fast.

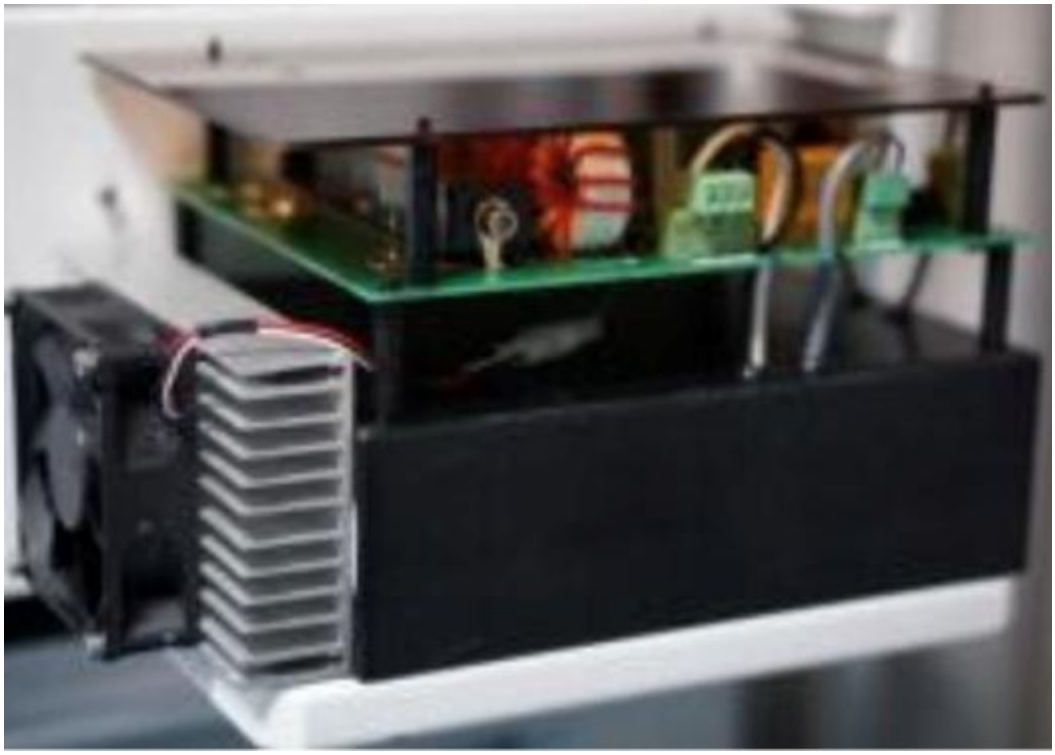


12. Digital excitation light source

Digital excitation light source, using the most advanced plasma excitation light source in the world, super stable energy is released in the argon environment to excite samples;

Fully digital excitation pulses ensure ultra-high resolution and high stability output of plasma excitation;

The various parameters of the light source can be adjusted arbitrarily to meet the excitation requirements of various different materials.



13. Vacuum oil prevention technology

Multi-stage isolation vacuum oil-return technology uses vacuum differential pressure valve to ensure that a vacuum oil filter device is added between the vacuum optical chamber and the vacuum when the vacuum pump is not working, ensuring that the oil in the vacuum pump does not enter the vacuum chamber and ensure that the CMOS detector and optical components work in a reliable environment.

14. Ethernet data transmission

The computer and the spectrometer use Ethernet card and TCP/IP protocol to avoid electromagnetic interference and the disadvantages of fiber aging. At the same time, the computer and printer are external completely, making it easier to upgrade and replace. The instrument status can be monitored remotely, and the multi-channel control system can control and monitor all instrument parameters.

15. Prefabricated working curve

There is a standard sample library of different materials and grades. The factory prefabricated working curve when the instrument leaves the factory, which is convenient for installation and debugging and timely put into production; there are slight differences according to the analysis procedures corresponding to the elements and materials, the excitation and testing parameters have been adjusted when the instrument leaves the factory, and the optimal testing conditions can be automatically selected according to the analysis procedures.