DW-TY-9000 Optical Emission Spectrometers (Arc/Spark-OES)

A Full Range of Solutions for the Entire Metals Industry

DW-TY-9000 is Full Range of Solutions for the Entire Metals Industry. It use full-digital technology to replace bulky photomultiplier tube (PMT) simulation technology and keep pace with international spectrometer technology. The adoption of vacuum optical chamber design, full-digital excitation light source, advanced CCD detectors, and high-speed data readout system equips the device with high properties, ultra-low limit of detection (LOD), long-term stability and repeatability.
The analytical precision can meet the requirements of laboratory standard, the analytical date is stable and reliable. Widely used in Metallurgy, casting, machinery processing and other industries incoming and outgoing product quality control.

Scope of supply

1.Supply list

No.	Item	Specifications	QTY	Unit	Remarks
1	Optical Emission Spectrometer	DW-TY-9000	1	Set	
2	Business computer		1	Set	
3	Printer		1	Set	
4	Tungsten electrode		1	Pc	
5	Electrode pressure spring		1	Pc	
6	The electrode fixed screw		2	Pcs	
7	Electrode brush	Φ6	2	Pcs	
8	Lens holder sealing ring	Φ16×2.65	2	Pcs	
9	Lens holder sealing ring	Φ72×2.65	1	Pc	Include in quotation.
10	Exhaust gas filter core		1	Pc	
11	Degreasing cotton		15	G	
12	Power socket		1	Pc	
13	M2 Internal hexagonal wrench		1	Set	
14	M4 Internal hexagonal wrench		1	Set	
15	Long handle phillips screwdriver		1	Pc	
16	13－15 fixed wrench		1	Pc	
17	Spark machine screw	M6	4	Pcs	
18	Fuse	10A	2	Pcs	
19	Argon gas pressure reducing valve		1	Pc	
20	Argon gas pipeline		2	M	
21	Exhaust pipe		1	Pc	
22	Gas bottle		2	Pcs	
23	Print paper		1	Pc	
24	Spectrometer manual		1	Set	

Notes: The Buyer knows and agrees that the Seller may adjust the supply when the production of the above-mentioned instruments, spare parts and other suppliers change due to technological progress, product upgrading, market changes, etc.

2. Optional items:

Optional item	Qty	Note
High purity argon gas (pure ≧ 99.999%)	1 bottle	Should prepare by customer. If can't get should use argon purifier to get 99.999% argon gas.
Small air conditioning	1 set	Essential, customer should prepare by themselves.
High precision magnetic saturation voltage stabilizer (1KVA)	1 set	Need for voltage instability, if the customer uses intermediate frequency furnace, then need 3KVA Voltage Stabilizer
Argon purifier	1 set	When argon gas is not as pure as 99.999%.
Samples grinder (ferrous metals) or Mini lathe (non-ferrous metals)	1 set	Essential
Type samples	pieces	Essential for foundry

Analytical Program

No	Elements	Cast Iron	Cr/Ni Stainless Steel	High Cr Cast Iron	High Ni Cast Iron
1	C	1.8-4.5	0.008-2.5	0.9-3.4	1.2-3.8
2	Si	0.2-4.2	0.09-4.0	0.2-2.5	0.04-3.5
3	Mn	0.06-4.7	0.12-16	0.1-2.4	0.001-6.8
4	P	0.02-0.8	0.003-0.3	0.01-0.3	0.0015-0.56
5	S	0.003-0.2	0.001-0.4	0.01-0.15	0.0015-0.24
6	Cr	0.03-2.8	7.4-35	0.4-34	0.0015-9.1
7	Ni	0.05-5.1	0.8-40	0.05-2.75	0.9-36.6
8	Mo	0.01-2.1	0.08-4.2	0.1-4	0.0015-1.5
9	Al	0.002-0.25	0.005-1.7		
10	Cu	0.06-2.0	0.05-4.5	0.06-1.5	0.005-0.3
11	Co	0.008-0.03	0.008-0.62		
12	Ti	0.007-0.7	0.005-1.1	0.01-0.14	
13	Nb	0.002-0.7	0.02-2.0	0.1-0.7	0.003-0.38
14	V	0.01-0.7	0.02-0.58	0.02-1.2	
15	W	0.007-1.0	0.002-4.1		
16	Pb	0.002-0.04	0.001-0.02		
17	Mg	0.001-0.14			0.005-0.025
18	B	0.002-0.3	0.007-0.02		
19	Sn	0.003-0.3	0.003-0.05		
20	Zn	0.005-0.03	0.006-0.08		
21	As	0.008-0.09	0.004-0.04		
22	Bi	0.006-0.03			
23	La	0.002-0.12			
24	Ce	0.04-0.1			0.002-0.02
25	Sb	0.004-0.2			
26	Fe	Reference	Reference	Reference	Reference

Technical Data of DW-TY-9000

	Item	Index
Optical System	Focal Length	400mm
	Wavelength range	165~589nm (Extendable)
	Detector	High resolution CCD Multi detectors
	Degree of vacuum	Auto control within 6-20 pa
	Pixel resolution	30pm
	Grating line	2400ml/nun
	First order spectral line dispersion rare	1.2nm/mm
	Average resolution ratio	10pm/pixel
	Full spectrum	
	Light room temperature is controlled automatically	
Spark Source	Type	Digital arc and spark source
	Spark frequency	100-1000HZ
	Discharge current	1-400A
	Ignition voltage	>15000V
	Excitation light	Optimization of discharge parameters design
		High energy precombustion technology HEPS
	Processor	High-speed data synchronization acquisition and processing
Spark Stand	Electrode	Tungsten electrode technology
	Make up	Thermal deformation self-compensation design
	Argon flushed with minimal consumption of Argon	
	Spray discharge electrode technology	
	Adjustable electrode technology	

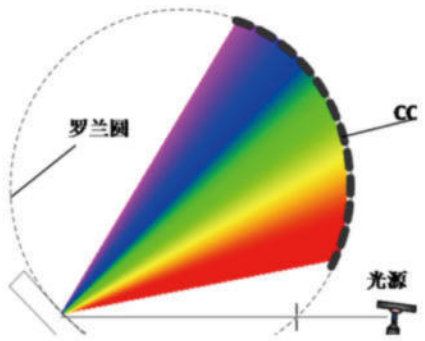
Optical System	Measurable elements	Fe、Al、Cu、Ni、Ti、Co、Zn、 Sn、Mg、Pb etc
	Dimension	800mm(L)*700mm*470mm(H)
	Weight	About 100kg
	Storage temperature	0°C-45°C
	Operating temperature	10°C-35°C, 23±2°C is recommended
	Power	AC220V/50Hz(Customized)
	Power consumption	Excitation:700W/Stand by:100W
	Argon quality	99.999%, Argon pressure>4Mpa
	Argon consumption	5L/min during spark mode
	Interface	Ethernet data transmission based on DM9000A

2. Main features

1.Optimized vacuum optics system

(1) Integrated optics room and Paschen Runge construction design, making all the spectrum lines focused on the gratings.

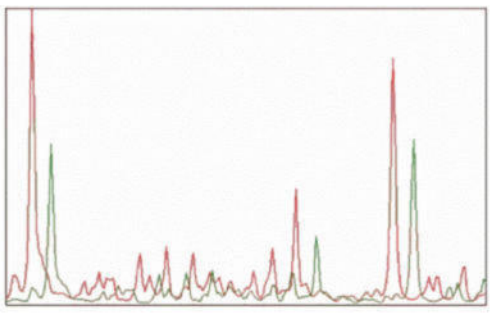
(2) Direct-jet type optics technology and MgF2 material lens to make sure ultraviolet wave's best energy of elements, such as C,S, P and N.



2. Automatic Light-Path Correction

(1) With automatic light path correction, optical system automatically scans the spectral lines to ensure the correctness of received lines and avoid tedious scanning of wave peaks.

(**2**) The instrument automatically identifies specific spectral lines and compares them with original stored lines to determine the location of the drift and find the present pixel position for analysis among the lines.



3. Single-Board Lens Design

(1) The adopted specialized entrance window separating from vacuum in the vacuum optical system can be operated under the system working status.
The adopted single-board lens structure in the optical lens is convenient for routine cleaning and maintenance.

(2) It is not required to maintain the device in the daily operation, and there is no consumable and renewal part.

4. Optical Chamber Integration

(1) Specialized optical chamber structural design makes the volume of the chamber smaller, with less than half air exhaust speed of ordinary spectrometers.

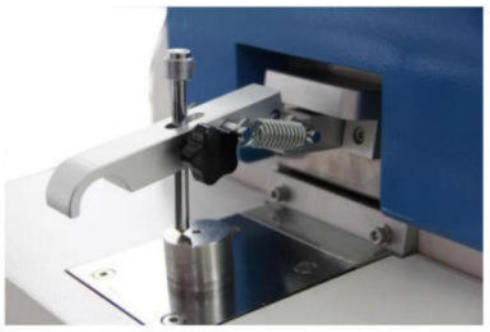
(2) Integrated design and high-precision processing in the vacuum chamber improves the duration of vacuum.

5.Vacuum Anti-Oil-Returning Technology

(1)Multi-level separating vacuum anti-oil-returning technology absorbs vacuum compaction and baffle valves to ensure the complete separation of vacuum optical chamber from vacuum pump during non-operation time.

(2) The intermediate addition of vacuum oil fdtering device ensures the oil inside the vacuum pump not to enter the vacuum chamber, and ensures CCD detectors and optical components to work under reliable situation.

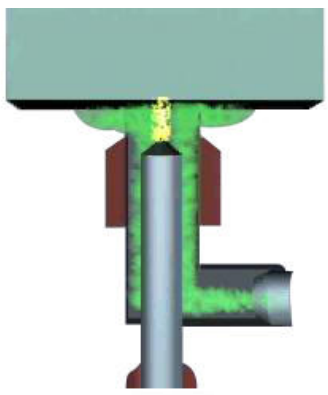
6. Open-Access Inspire Stand



⑴Flexible sample clamp design of Open-Access Excitation Stand satisfies user on-site analysis of samples with different sizes and shapes

⑵ The small sample clamps in cooperative use can make the analytic precision of wire rods achieve 1.5 mm at the minimum.

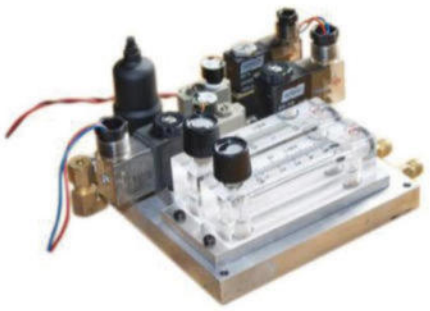
7. Injection Electrode Technology



⑴The instrument adopts the most internationally-advanced injection electrode technology with tungsten used. Under the status of excitation, the electrode forms argon gas injection flow surrounded. Thus, there is no opportunity for the surrounding excitation points to contact external air so as to improve precision of excitation.

⑵ The attached specialized argon gas channel design significantly reduces the usage amount of argon gas and use cost for customers.

8. Integrated Gas Channel Block



⑴ The excitation stand is made of alloys with good heat dissipation to achieve solidity, durability and cleaning convenience.

⑵ The gas supply system adopts integrated gas channel block and electrode self-flushing function to create good environment for excitation.

9. Full Digital Inspire Light Source

⑴ The system uses the most internationally-advanced plasma inspire light source, and generates ultra-stable energy release to excite samples in the environment filled with argon gas.

⑵ Full Digital Inspire Light Source ensures ultra-high resolution and high-stability output rate of plasma in the excitation samples.

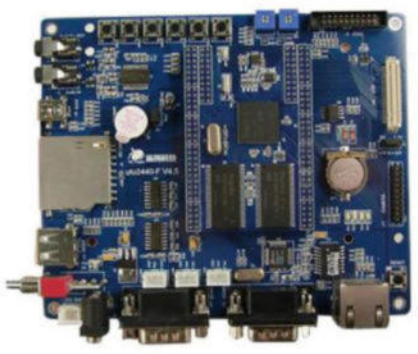
⑶ Full Digital Inspire Light Source can satisfy inspire requirements for different type of materials.

10. High-Speed Data Acquisition

⑴The instrument adopts high-performance CCD devices, UV coating technology and high-performance FPGA, DSP and ARM processors.

⑵The system has ultra-high functions of data acquisition and analysis, and can realize automatic real-time monitoring and control of the block operation status of optical chamber temperature, vacuum degree, argon gas pressure, light source and excitation chamber.

11. Ethernet Data Transfer



⑴ Ethernet cards and TCP / IP protocol are connected between computers and spectrometers to avoid electromagnetic interference, fiber aging defects. Meanwhile, the computers and printers are completely placed in external position for the benefit of promotion and substitution.

⑵ Complete network systems.

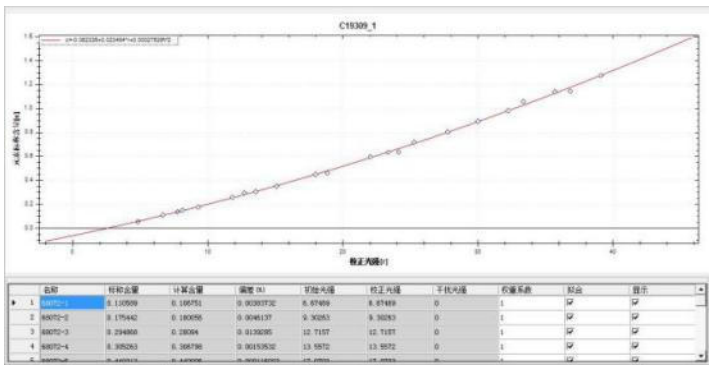
⑶ The system can remotely monitor the status of devices, operate the system through multiple channels, as well as control and monitor all the instrumental parameters.

12. Pre-Set Working Curves

⑴ The analysis programs in terms of elements and materials exist slight difference. The parameters of excitation and measurement have been adjusted before delivery. Customers can automatically choose optimal measurement conditions according to analysis programs.

(2) Over a long period of time, the factory has been accumulating a large amount of experience and comprehensive international standard sample base. The factory pre-sets the working curves before delivery to benefit customers to put the device into use immediately after receiving.

⑶ The analysis range is attached to the technical specification (the system can plot or prolong working curves for free according to samples provided by customers).



13. Fast Analysis Speed

⑴ The fast analysis speed saves time for customers by finishing the element component analysis through all channels within 20 seconds.

⑵ According to the specific type of materials to be analyzed, it is available to make the instruments achieve the best analysis results within the minimum duration by setting pre-burning time and measurement time.

14. Multiple Matrices Analysis

⑴ The light-path design absorbs the structure of Rowland circle and vertically interleaved CCD arrays to ensure all the spectral lines to be received. No hardware is required to realize analysis of multiple matrices.

⑵ It is convenient to add up matrices, material types and analysis elements according to the requirements of production.

⑶ Compared with photomultiplier tubes (PMTs), spectrometers can significantly decrease use cost and increase the range of usage**.**

15. Software with Multiple National Languages

(1) The instrumental operating software is completely compatible with Windows system, and can be equipped with specific language versions according to user requirements.

(2)The software is easy to use. Even those staff without any knowledge and experience about spectrometers can easily use the software after a short simple training.