Skyray Skyray Instrument

Stock code: 300165

The ISO 9001: 2008 international quality certification system is adopted by our company

The Display of Technical Arts

Skyray Skyray Instrument

Fast | Accurate | Stable

Metals Analyzer

OES 8000

Optical Emission Spectrometer

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140 countries & regions are using Skyray Instrument up to now

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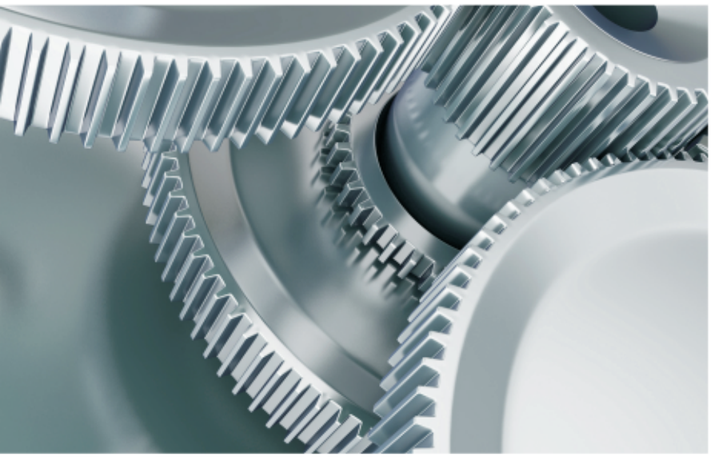


Skyray Instrument

Metals Analyzer

OES 8000

Optical Emission Spectrometer

Performance advantages

Based on the Multi−CCD detector and total spctrum technology, Optical Emission Spectrometer OES 8000 detect all the spectral lines within the range of wavelength; so it is extremely easy to install and add the matrix, channels and analytical program. With a compact size, it is easy to maintain and locate in the laboratory. OES 8000 is a good choice of the complex analysis for ferrous and non−ferrous metals in one instrument.

- Thanks to the Multi−CCD detector and total spctrum technology, it is easier to install and add the matrix, channels and analytical program in Skyray or customers' laboratory
- Require smaller space for laboratory because of the compact size
- Work for 24/7 to serve your business with high stability and reliability
- Fast way to analyze and demonstrate the results within 35 seconds
- The operation and maintenance are simple and convenient for operators
- All of the typical analytical programs are calibrated in Skyray, which are more accurate and test more types of metal grades
- Easy to calibrate the instrument with the standardization samples
- Without chemical reagents, the analysis process is safe and eco-friendly.

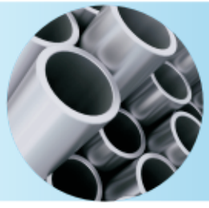
Application fields

The element analysis for metal materials is a traditional work for the research and development, quality control, process control and other related works in the field of the metal smelting, casting and processing industry.

Skyray Optical Emission Spectrometer is widely used in the element analysis of ferrous and non−ferrous metal. The instrument can simultaneously analyze dozens of elements with a fast, accurate and stable performance, meeting the requirements in industrial development, process control, incoming inspection, product sorting, etc.

Skyray Optical Emission Spectrometer provides a convenient, eco-friendly and low-cost solution for metal analysis, making the R&D, production process and product quality more controllable, helping users upgrade the level of technology and quality; while accelerating the relevant procedures and creating economic and environmental benefits for users. Optical Emission Spectrometer has been a typical device to evalue the level of technology and product quality for a factory.

Skyray Instrument

Requirements

Ambient temperature: 15–30°C
Atmospheric humidity: ≤70%
Power: Voltage 220V ± 5V 50Hz; single phase with protective ground
No vibration, dust, strong electromagnetic interference, strong airflow or corrosive gases in the laboratory

Auxiliary equipments

Argon—The purity is above 99.999%
AC parameter voltage stablilizer—1KVA
Grinding machine—For the samples like Steel, Nickel alloy, etc
Small lathe—For the samples like Aluminum, Copper, Zinc, Magnesium, etc
Air conditioner—Select suitable power according to the area of laboratory

Technical Specifications

Spectrometer design

◇ Paschen–Runge polychromator, 350mm focal length
◇ Effective wavelength range: 140–800 nm
◇ Resolution:10pm/pixel
◇ Temperature controlled at 34 ± 0.5℃, vacuum type or air type
◇ Special casting materials reduce the deformation of the chamber

Grating

◇ Holographic concave grating: 3600 l/mm
◇ Dispersion of the first order spectrum: 1.2nm/mm

Detector

◇ High–performance linear array CCD

AnalysisTime

◇ Depend on the type of materials,typically less than 30 seconds

Spark Source

◇ Digital plasma generator
◇ High energy pre-spark (HEPS)
◇ Frequency: 100-1000Hz
◇ Current: 1-80A

Spark Stand

◇ 4mm analytical gap of the sample stand
◇ Jet stream technology
◇ No Argon consumption in standby mode

Dimension and Weight

◇ Dimensions: Height 450 Width 750 Depth 800
◇ Weight: 85kg

Electrical Power

◇ Max. 1.5kVA
◇ Standby mode: 70VA

Technical advantages

Comprehensive analysis for the elements in most metals with the full spectrum detection

Based on the CCD detector with the full spectrum detection technology, the instrument can comprehensively detect the spectral lines of the most of the elements in the metal samples, and carry out analysis for multi-matrix and multi-elements easily. Therefore, it is convenient and inexpensive to install and add the matrix, channels and analytical program in Skyray or customers' laboratory

Professional test solution

With long experience in analysis technology service, Skyray Instrument provides users with the sound solutions for the analysis of ferrous and non–ferrous metal.
The analysis programs in our solution are designed according to the classification of metal grade, meeting the various test demands of users perfectly.
The analysis programs are factory-calibrated with international or national standard samples, and have been fitted and corrected by professional software.
Just using a few pieces of the standardization samples supplied by Skyray, the user can carry out the routine calibration easily. So it is unnecessary to purchase a large number of standard samples for the analysis program.

Top international suppliers provide the core components

Dispersive device—The grating manufactured by CARI ZEISS in Germany ensure the excellent resolution.
Detector—CCD manufactured by TOSHIBA in Japan ensure the detection of spectrum sensitive and low noise.
Optical lens is manufactured by CARI ZEISS in Germany;
Optical fiber is manufactured by Agilent Technologies in America.

Excellent thermostat system for the polychromator

The thermostatic chamber is configured with a feedback heating device and the highly efficient thermal insulating layer, ensuring the temperature of the polychromator.
The thermostatic chamber suppress the drift of optical path due to the slight changes in the dimensions of the mechanical components in different temperatures. Meanwhile, the constant temperature is beneficial to the performance of photoelectric devices.

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Test examples

Sampling

There are two kinds of sampling for spectrochemical analysis: the melt sampling and the product sampling. In the melt sampling, the metal liquid is injected into the mold and solidify into a solid sample. In the product sampling, the size and shape of the sample should be considered to judge whether cutting it or not.

Reference standards

ISO 14284 Steel and iron—Sampling and preparation of samples for the determination of chemical composition

ASTM E 1806 Standard Practice for Sampling Steel and Iron for Determination of Chemical Composition

ASTM E 716 Standard Practices for Sampling and Sample Preparation of Aluminum and Aluminum Alloys for Determination of Chemical Composition by Spectrochemical Analysis

Preparation

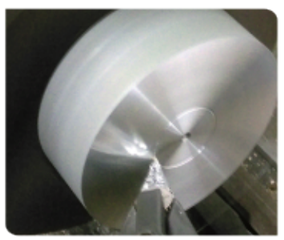
For the high hardness metal samples(such as steel, Nickel, Cobalt alloy), grind the surface with the grinding machine; for the low hardness metal samples(such as Aluminum, Copper, Zinc, Magnesium alloys), turn the surface with the lathe. The treated surface should be flat and smooth with scratches in the same direction.

Analysis

Place the sample on the spark stand and start the analysis process by operating the software. After completing the test, all the results of the customized elements are displayed simultaneously. The time of a single procedure is less than 40 seconds, and analyzing the same sample for the three times is genegrally recommended .

Save the result

The results of the analysis could be stored in the database of the software or printed directly.



Typical results

Low alloy steel GBW1398

Elements	C	Si	Mn	P	S	Cr	Ni	Mo	Cu
Reference Value	0.499	2.140	0.798	0.029	0.021	0.974	1.970	0.830	0.303
Results	0.491	2.168	0.818	0.027	0.019	0.953	1.939	0.820	0.291
Elements	V	Ti	Al	Nb	W	B	Co	Zr	
Reference Value	0.469	0.082	0.027	0.124	1. 530	0.0047	0. 238	0.051	
Results	0.475	0.083	0.025	0.127	1. 501	0.004	0. 230	0.055	

Stainless steel YSB S 11378a-2008

Elements	C	Si	Mn	P	S	Cr	Ni	Mo	Cu
Reference Value	0.066	0.760	1.160	0.030	0.0091	17.490	8.230	0. 205	0. 355
Results	0.066	0.790	1.180	0.027	0.007	17.573	8.173	0. 189	0. 344
Elements	V	Ti	Al	Nb	W	Co			
Reference Value	0.061	0.006	0.014	0.011	0.021	0.099			
Results	0.059	0.007	0.018	0.010	0.029	0.094			

Al-Si alloy E513e

Elements	Si	Fe	Cu	Mn	Mg	Ni	Zn	Ti	Pb	Sn	Sr
Reference Value	12.64	0.212	2.070	0.540	0.753	0.066	0.216	0.042	0.074	0.021	0.062
Results	12.715	0.190	2.031	0.528	0.737	0.068	0.211	0.040	0.078	0.020	0.064

Low alloy Aluminum E423b

Elements	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti
Reference Value	1.280	0.432	0.522	0.234	0.911	0.340	0.030	0.091	0.028
Results	1.261	0.417	0.513	0.226	0.893	0.321	0.026	0.092	0.026

Copper 31XB21

Elements	Cu	Zn	Sn	Pb	Fe	Ni	Al	Si	Mn
Reference Value	69.6793	29.500	0.132	0.120	0.129	0.107	0.121	0.147	0.0647
Results	69.781	29.403	0.121	0.101	0.124	0.112	0.134	0.135	0.061

Zn-Al alloy 43XZ4

Elements	Al	Cu	Fe	Mg	Pb	Cd	Sn
Reference Value	4.760	3.210	0.064	0.043	0.0024	0.0025	0.030
Results	4.723	3.168	0.052	0.043	0.0029	0.0021	0.026

Mg-Al alloy E2612

Elements	Al	Zn	Mn	Si	Fe	Cu	Ni
Reference Value	7.180	2.990	0.339	0.097	0.013	0.087	0.0045
Results	7.116	2.942	0.359	0.090	0.017	0.082	0.002

Inconel B.S.600C

Elements	C	Mn	Si	Cr	Fe	Mo	W	Al	Ti
Reference Value	0.072	0.500	0.390	15.620	9.300	0.027	0.003	0. 200	0. 210
Results	0.058	0.469	0.412	15.559	9.212	0.0246	0.007	0. 182	0. 242
Elements	Cu	Co	Nb	V	Mg				
Reference Value	0.040	0.040	0.014	0.022	0.002				
Results	0.043	0.038	0.012	0.025	0.004				