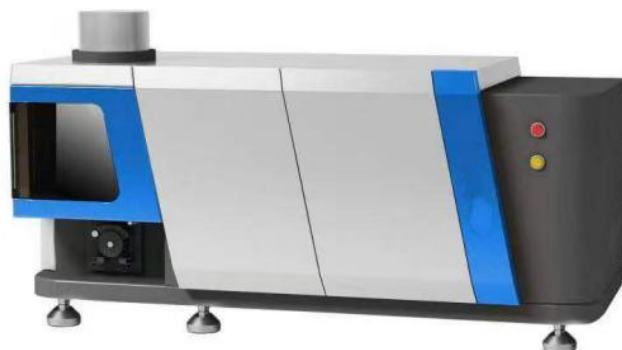


DW-ICP-TY9900 Technical Parameter



Product specification and technical index

*Solid State Power Supply

Operating frequency: 27.12MHz

Frequency stability: <0.05%

Matching mode: automatic matching

Output power: 800W ~ 1600W, continuously adjustable, power supply efficiency greater than 65

Output power stability: $\leq 0.05\%$

Output working coil inner diameter 25mm, 3 turns, with three concentric outer diameter 20mm quartz torch tube

Coaxial type sprayer outer diameter 6mm; double-cylinder type sprayer outer diameter 35mm

Scanning beam splitter

Optical path: Czerny turner type

Focal length: 1000mm

Grating specifications: ion-etched holographic grating, line density 3600L/mm or 2400L/mm; engraved area (80 × 110) mm

Resolution: 0.008nm (3600 line grating) \leq 0.015nm (2400 line grating)

Scanning wavelength range: 3600 line grating: (190 ~ 500) nm; 2400 line grating: (190 ~ 800) nm

Electronic Measuring and Control Circuits

Photomultiplier tube specifications: R212/R928

Photomultiplier negative high voltage: (-50~-1000) V

Photomultiplier current measurement range: (10⁻¹²~10⁻⁴) A

Signal acquisition: VF conversion

Computer system

Host: Lenovo brand computer

Monitor: 17-inch LCD monitor

Printer: Canon inkjet printer

Technical index of the whole machine

Scanning wavelength range: 190-460nm (4320L/mm grating), 190nm-500nm (3600L/mm grating), 190nm-800nm (2400L/mm grating);

Measurement range

a.Liquid content: 0.01ppm - thousands of ppm

b.Solid content: 0.001% -----70%

Repeatability: (i.e. short-term stability) relative standard deviation $RSD \leq 1.5\%$;

Stability: Relative standard deviation $RSD \leq 2\%$;

Testing speed: 5-8 elements/per minute

Instrument Features

More than 70 elements can be measured

Fast analyzing speed, 5-8 elements can be measured in one minute.

Simultaneous analysis of multiple elements, customers are free to choose the number of elements and arrange the order of measurement.

Low detection limit, up to ppb level, even up to 0.7ppb for Ba.

Wide linear dynamic range, up to 6 orders of magnitude, high and low content can be measured simultaneously.

Low analysis cost, one bottle of argon can be used for 8 hours.

Total reflection achromatic optical system

The use of concave mirrors instead of convex lenses as optical focusing elements solves the problem of chromatic aberration caused by the different focal points of different elements and improves the efficiency of the optical system at the same time.

Wide wavelength range

Choose 4320 graduated gratings, the wavelength range is up to 190nm-460nm.

Choose 3600 graduated gratings for a wavelength range of 190nm-500nm.

Choose 2400 graduated gratings for wavelengths from 190nm to 800nm.

Fully automated design

High degree of automation, the whole instrument, except the power switch, all the functions of the instrument are controlled by computer, reliable, safe and convenient.

Automatic gas flow control

In the feeding system, the carrier gas, plasma gas and auxiliary gas are all controlled by advanced mass flow controller (MFC), which has the advantages of continuously adjustable flow rate and stable flow rate, etc. It ensures the stability of the feeding system and provides a strong guarantee for the stability of the light source.

Advanced Sampling System

The feeding system is highly efficient and stable, and can be equipped with various kinds of

atomizers and atomization chambers at home and abroad. It can be equipped with high salt atomizers, hydrofluoric acid resistant atomizers, etc. to meet the needs of different customers.

Stable waste liquid elimination system

Through the peristaltic pump for waste liquid exclusion, to ensure that the injection volume and waste liquid exclusion speed is consistent, customers can adjust the speed appropriately according to the need to ensure the stability of the injection system.

***Stable and advanced all-solid-state RF power supply**

The RF power supply adopted by the instrument is a self-developed all-solid-state RF power supply, which has many advantages such as small size, high efficiency, stable output power, and various protection functions, which further improves the stability and safety of the instrument.

***Fast and accurate fully automatic matching function**

The load terminal adopts self-developed full-automatic matching technology, which has the advantages of fast matching speed, high accuracy, etc. It ensures that the output power is maximized and added to the load, improves the efficiency of the power supply, which in turn improves the stability of the instrument and makes the whole ignition process convenient and simple.

***One-touch ignition**

With the solid-state power supply and automatic matching technology, it perfectly realizes the one-key ignition function. Users only need to click the ignition button, the instrument automatically carries out gas blowing, gas flow checking, ignition, matching and many other actions, and real-time information will be transmitted to the customer, so that the customer can save the trouble.

***Automation of observation height adjustment**

Different elements have different optimal observation heights, customers can adjust the observation height of the flame appropriately through the software according to experience or comparison, and get the best measurement effect at the best position.

Powerful graphical diagnostic function

Powerful graphical diagnostic function can help customers fully understand the current working status of the instrument, and through the appropriate parameter settings to observe the operation of the instrument under different conditions, in order to grasp the best measurement conditions.

Multi-element automatic measurement

Select each element to be measured, set the measurement parameters, and leave everything to the instrument, and finally get the measurement results of all elements directly, which is simple and hassle-free.

***Powerful database management**

With thousands of spectral lines, you can select appropriate spectral lines according to your needs and preferences, avoiding possible interference, providing you with more choices and more reasonable recommendations, making the test more professional and accurate.

The software has independent intellectual property rights, powerful functions and user-friendly operation.

The software is powerful, with Chinese and English automatic switching function, qualitative and quantitative analysis; data reprocessing function; automatic calculation of elemental content, automatic generation of test reports; data filtering function, eliminating unwanted data; database management is perfect, can be freely saved and deleted.

Detection limit

(μg/L) :

Element	Ta	Nb	Mn	Mg	B	Zn	Co	Si
Wavelength (nm)	226.230	313.340	257.610	279.553	249.773	213.856	228.616	251.611
Detection limit	<5.0	<5.0	<3.0	<1.0	<10.0	<3.0	<3.0	<10.0
Element	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
Wavelength (nm)	408.672	413.765	414.311	401.225	360.946	381.967	342.247	350.917
Detection limit	<3.0	<5.0	<5.0	<5.0	<10.0	<1.0	<9.0	<3.0
Element	Cu	Cr	Al	Zr	Ag	Sr	Au	Pt
Wavelength (nm)	324.754	267.716	396.152	343.823	328.068	407.771	242.795	265.945
Detection limit	<3.0	<5.0	<5.0	<5.0	<3.0	<1.0	<5.0	<5.0
Element	Ni	Cd	Fe	Ca	Mo	V	Be	Ti
Wavelength (nm)	232.003	226.502	239.562	393.366	281.615	310.230	313.041	334.941
Detection limit	<5.0	<3.0	<3.0	<1.0	<5.0	<5.0	<1.0	<3.0
Element	Dy	Ho	Er	Tm	Yb	Lu	Y	Sc
Wavelength (nm)	353.170	345.600	337.271	313.126	369.419	261.541	371.030	335.373
Detection limit	<3.0	<3.0	<3.0	<3.0	<1.0	<3.0	<1.0	<1.0
Element	Pd	Ir	Rh	Ru	Ba	Li	Na	K
Wavelength (nm)	340.458	224.268	343.489	240.272	455.403	670.784	588.995	766.490
Detection limit	<5.0	<10.0	<10.0	<5.0	<1.0	≤3	≤20	≤30
Element	As	Sb	Bi	Hg	Pb	Ga	Os	W
Wavelength (nm)	228.812	206.833	223.061	253.652	220.353	294.364	225.585	207.911
Detection limit	≤15	≤15	≤10	≤15	≤15	≤10	≤1	≤10
Element	Sn	Te	Ta	Th	Tl	Re	Ge	Se
Wavelength (nm)	242.949	214.281	226.230	283.730	276.787	227.525	209.426	203.985
Detection limit	≤20	≤10	≤5.0	≤10	≤30	≤5	≤15	≤15