

# OES OPTICAL EMISSION SPECTROMETER

QualiSpark Series



## OES OPTICAL EMISSION SPECTROMETER QualiSpark Series

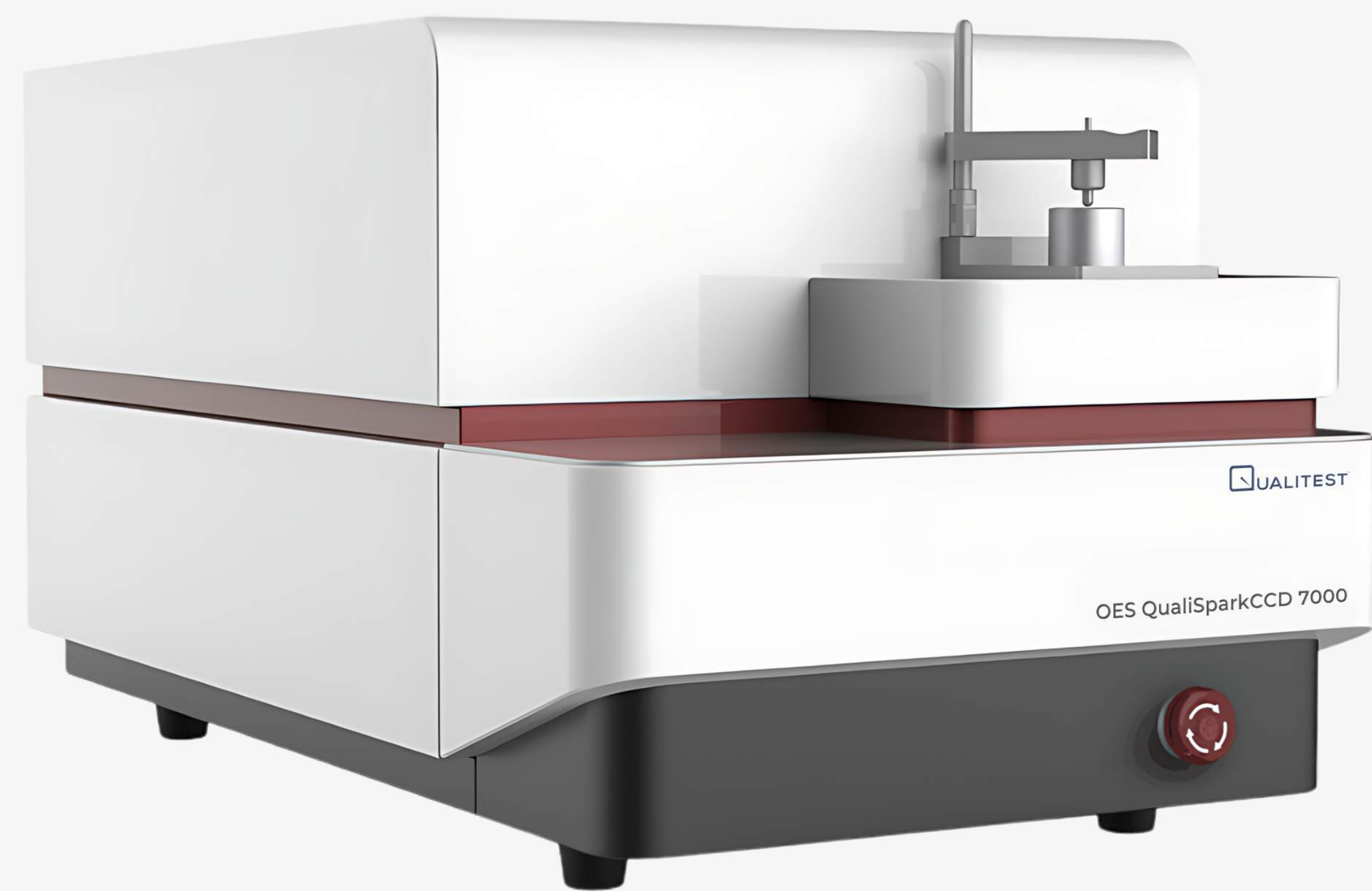
In today's competitive landscape, where maintaining product quality and meeting regulatory standards is a principle, the **QualiSpark Series** stands out for its unmatched accuracy and reliability.

Utilizing advanced optical emission spectroscopy, this series accurately detects and quantifies elements in solid metal samples. From metallurgy to manufacturing, OES **QualiSpark 1000** and **QualiSparkCCD 7000** serve as vital tools for quality control, research, and development.

Empowering informed decision-making and driving efficiency in material science, **it's more than just a tool**—it's the key to exceptional quality control and compliance.

# PRODUCT CATEGORIES

OES QualiSparkCCD 7000

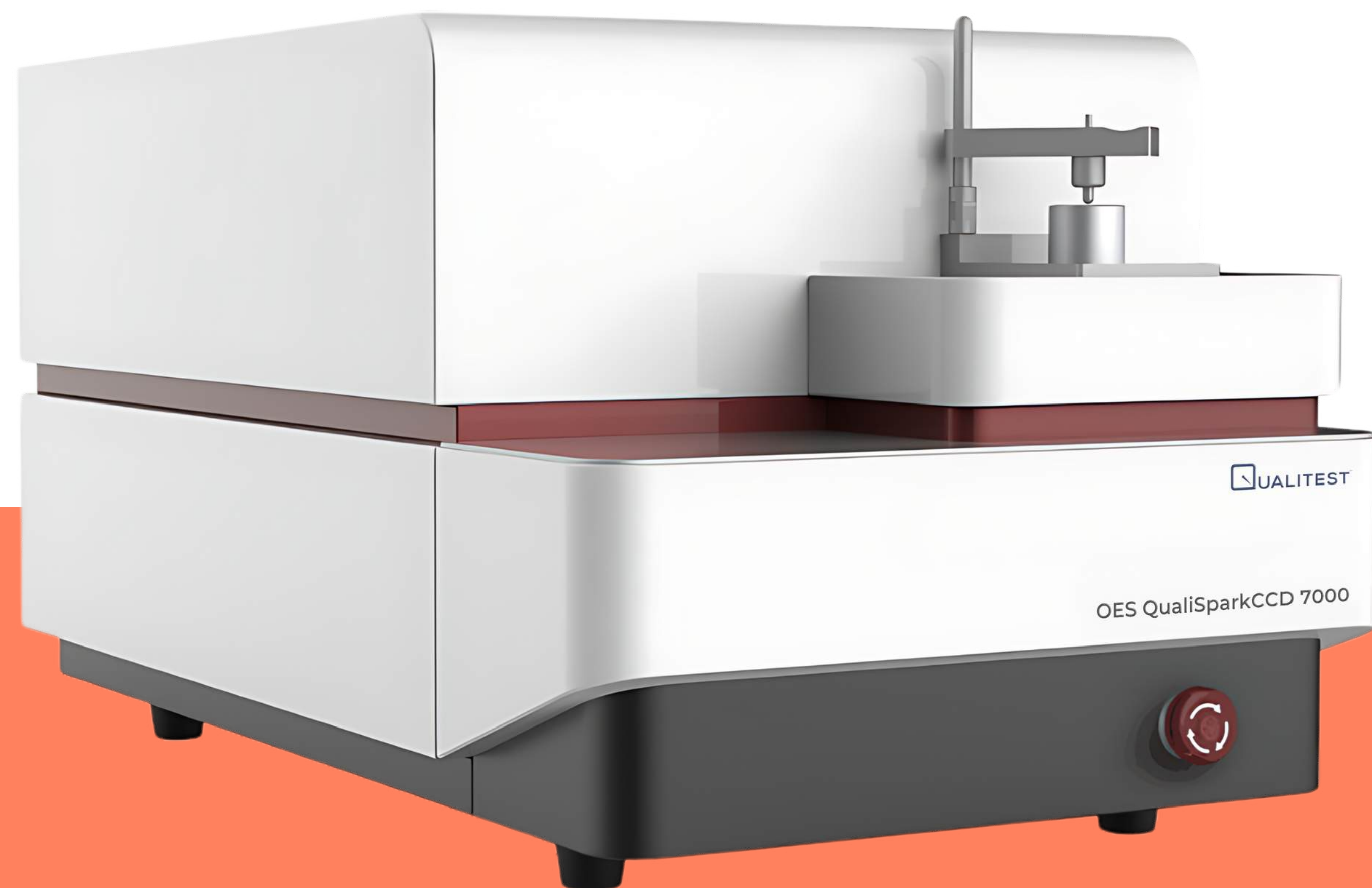


OES QualiSpark 1000



# OES OPTICAL EMISSION SPECTROMETER

## QualiSparkCCD 7000

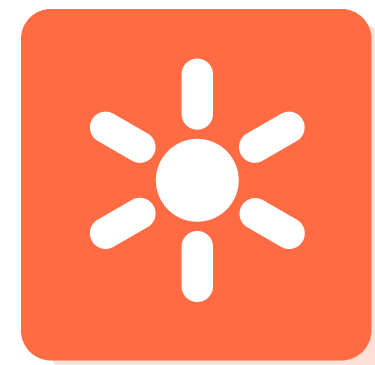


**The OES Optical Emission Spectrometer - Full-Spectrum Spark OES QualiSparkCCD 7000** is essential for monitoring production processes and testing final products in industries like metallurgy, casting, machinery, and metal processing.

It accurately analyzes the chemical composition of metals and alloys, including iron, aluminum, copper, nickel, cobalt, magnesium, titanium, zinc, lead, tin, silver, and more.

Discover how the QualiSparkCCD 7000 can enhance your production quality.

## PRODUCT ADVANTAGES



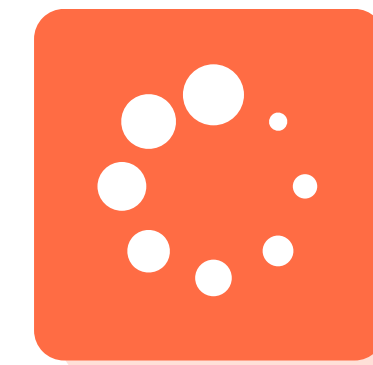
**Fully Digital Solid-State Light Source:** This advanced light source allows continuous adjustment of excitation energy and frequency, ensuring compatibility with a wide range of materials. Whether you're working with metals, alloys, or other substances, the QualiSparkCCD 7000 adapts seamlessly to your needs, providing precise and reliable results.



**Fast and Versatile NET-Based Acquisition:** The sophisticated NET-based acquisition and control system offers both efficiency and flexibility in operation. This system facilitates quick data collection and analysis, making it ideal for high-throughput environments. It ensures that you can manage and interpret your data with ease, enhancing overall productivity.



**Copper Spark Stand Base:** Designed with a copper base, the spark stand enhances heat dissipation, which is crucial for maintaining the stability and longevity of the instrument. This robust construction not only improves durability but also ensures consistent performance over extended periods, making it a reliable choice for demanding applications.



**Minimal Argon Consumption:** The QualiSparkCCD 7000 is engineered to consume minimal argon, maintaining stable pressure levels and reducing operational noise. This efficiency results in a shorter cold startup time, allowing the instrument to be ready for use quickly. This feature is particularly beneficial for labs needing rapid turnaround times.



**Innovative Argon-Flushed Chamber Technology:** Ensures long-term stability and consistent performance by using programmable control to manage the argon-flushed chamber. This design protects the internal components from contamination and environmental factors, ensuring reliable results and reducing maintenance requirements.



**Comprehensive Full-Spectrum Detection:** The spectrometer employs a multi-chip staggered layer of linear array CCDs with a special coating, enabling comprehensive full-spectrum detection. This setup provides high-resolution and accurate spectral analysis across a wide range of wavelengths. Additionally, the single plate lens holder design significantly reduces contamination in the light chamber during lens cleaning, maintaining the integrity of your optical measurements and extending the lifespan of the instrument.

# PRODUCT FEATURES

## Optical System Features:

- Utilizes the Paschen-Runge mounting for precise optical alignment.
- Incorporates a high luminous holographic grating with a focal length of 500mm and 2700 grooves/mm, enabling a broad spectral line range of 130-800 nm and the analysis of elements such as N, Li, Na, and K.
- Offers impressive dispersive power with a first-order dispersive rate of 0.74nm/mm and a second-order dispersive rate of 0.37nm/mm.
- Achieves outstanding resolution at 0.005926nm.
- Features a detector equipped with multiple CCDs, allowing for analysis without testing channel limitations.
- Adopts a brand new cast optical chamber with an extremely low thermal expansion coefficient, ensuring high instrument stability.
- Maintains a constant temperature system with temperature control accuracy of  $\pm 0.1^{\circ}\text{C}$ .
- Comes up with a rapid startup times, with the cold machine starting in just 30 minutes after a 12-hour shutdown and the hot machine starting in only 5 minutes.

## New Monitoring System:

- Features a brand new system for monitoring the instrument's status, providing real-time updates on instrument status and work progress. This information is conveniently displayed at the bottom of the software interface.
- The system offers an intuitive and straightforward operation, making it simple and quick to use, while also being easy to maintain and debug.

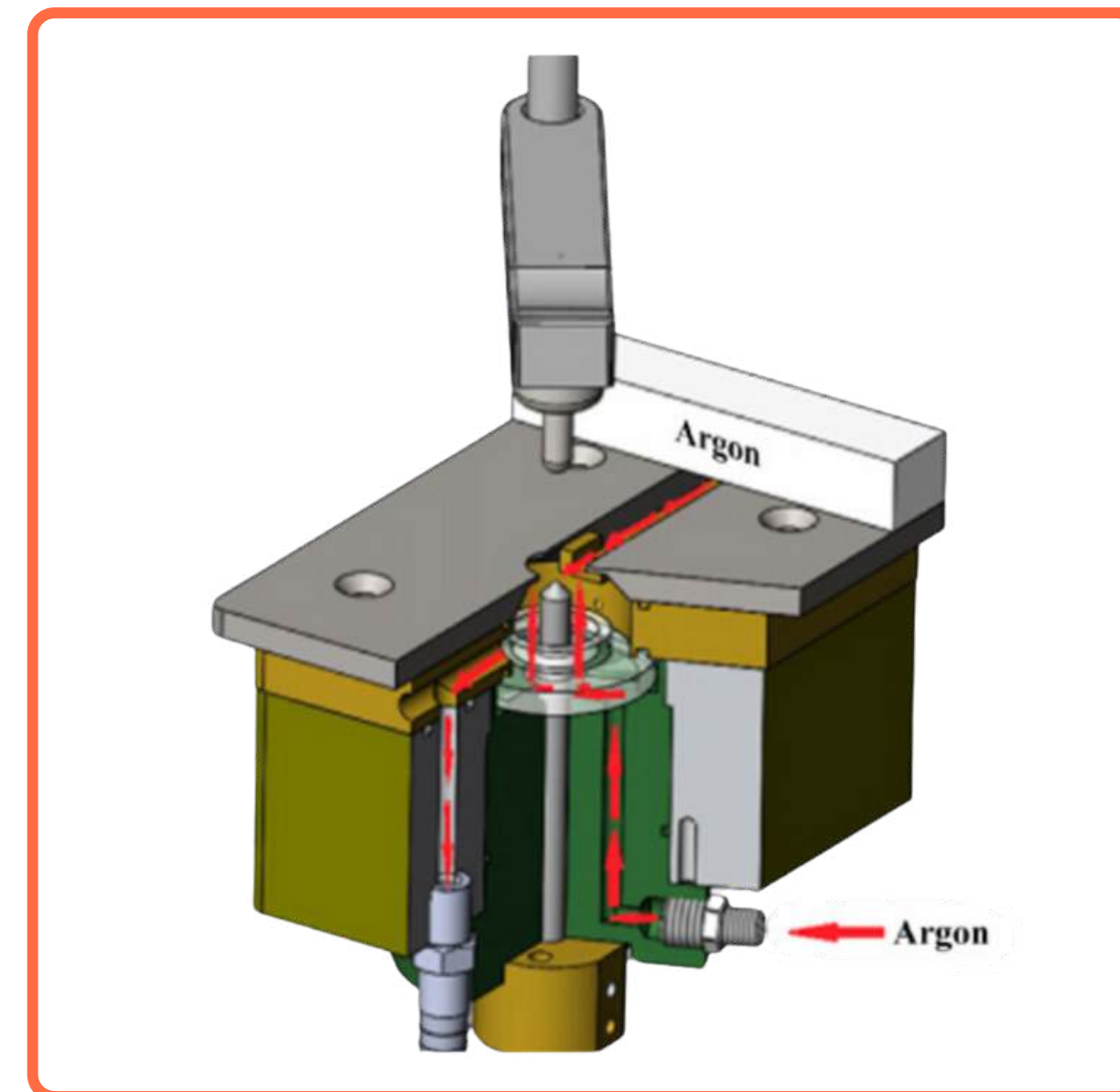
## Argon Gas Consumption:

- Utilizes a programmable argon-flushed system with a swift argon-flushing process and minimal consumption, optimizing the use of argon gas.
- Features a brand new argon gas utilization system designed for efficiency and cost-effectiveness.
- Features an ultra-low standby flow rate of 60ml/min, enabling a single bottle of argon to be used for up to 70 days during continuous 24-hour standby operation. This remarkable efficiency contributes to cost savings and uninterrupted analytical processes.

# PRODUCT FEATURES

## Spark Stand:

- The spark stand is designed to accommodate samples with a maximum weight of up to 50kg, allowing for the analysis of larger and heavier samples.
- It features a newly designed coaxial spark stand with an optimized internal gas circuit, resulting in significantly reduced argon consumption, which is not only cost-effective but also environmentally friendly.
- The spark stand includes a self-purging function that effectively maintains the cleanliness of the cavity, ensuring consistent and accurate analysis.
- The discharge chamber is specially designed to ensure that discharges occur under optimal conditions, promoting precise and reliable results for your analytical needs.



## CCD Detector:

- Equipped with a high-resolution CCD detector featuring 3648 pixels per chip.
- Each pixel has a remarkably small size of only 8 $\mu$ m, ensuring precise and detailed data acquisition.

## Integral Acquisition:

- Utilizes NET-based port data acquisition for reliable data transmission with minimal configuration, streamlining the setup process.
- Uses multi-thread data acquisition to bolster the software's stability and enhance data reliability. This feature optimizes data collection and processing, resulting in more consistent and precise results during analysis.

## Communication Device:

- Offers a wide range of communication modes to cater to diverse user requirements, ensuring flexibility in data transmission.
- Facilitates data transmission to remote terminals or printers, supporting online analysis, remote monitoring, diagnostics, and maintenance. This feature enables seamless and efficient management of the instrument's performance and data analysis from remote locations.

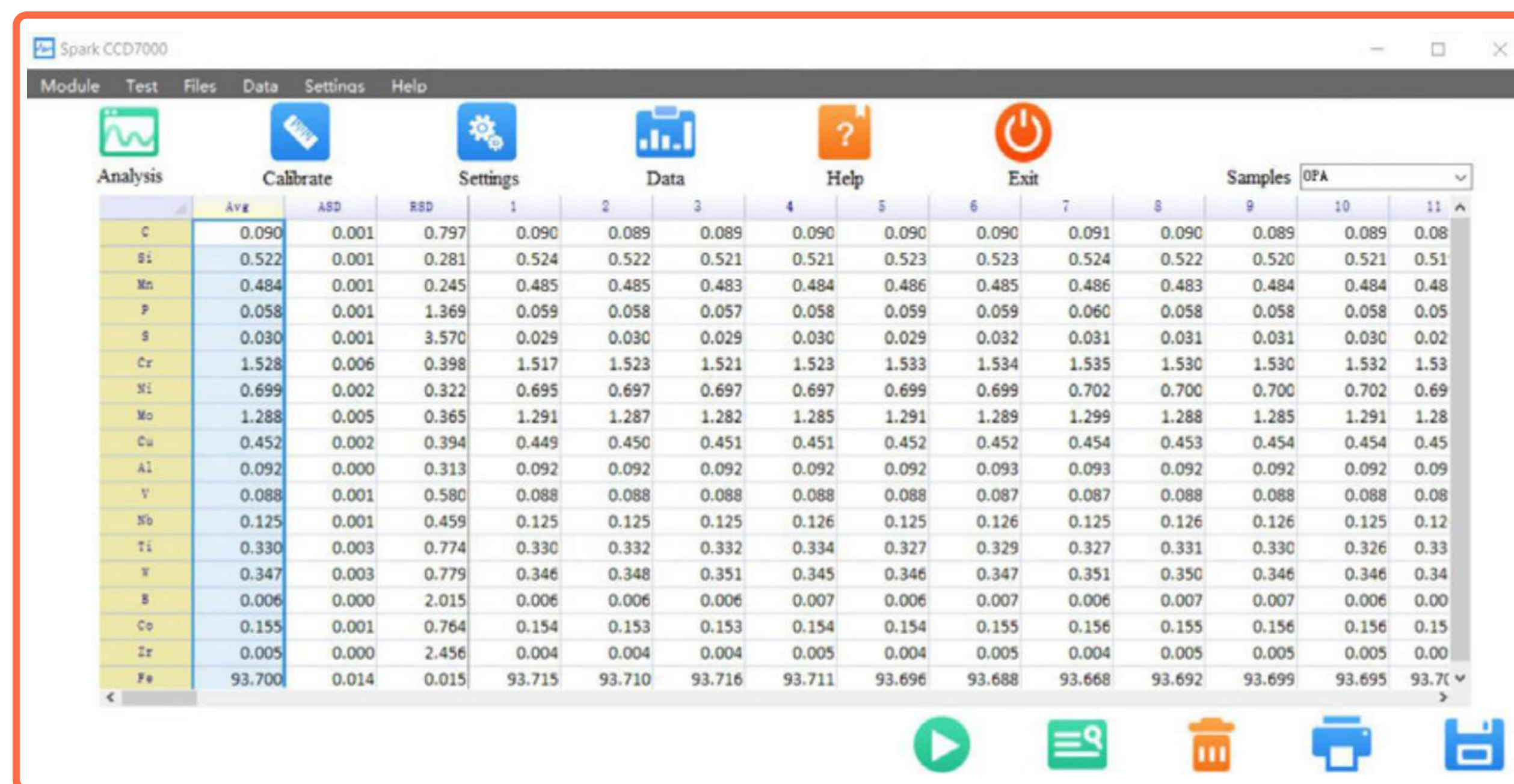
# PRODUCT FEATURES

## Analysis Software:

- The software enables the calculation of the same elements in different matrices using distinct curves, providing versatility in analytical applications.
- It is a user-friendly, multi-language software that ensures accessibility and ease of operation for a diverse user base.
- Includes self-developed burden proportioning software, which automates the generation of burden proportioning plans based on testing results. This feature streamlines the analytical process, saving time and enhancing accuracy.
- Offers material identification capabilities, allowing for the automatic calculation of functions like carbon equivalent, aiding in comprehensive material analysis.

## Spark Excitation:

- Discharge parameters are safeguarded by password protection, ensuring the integrity and security of your analytical settings.
- The spark excitation source offers the flexibility of continuously adjustable light source frequencies, energy levels, and various other parameters, allowing for precise customization to meet your specific analytical requirements.
- It supports a maximum discharge frequency of up to 1000Hz, enabling rapid and high-frequency analysis when needed.
- Features a Mean Time Between Failures (MTBF) exceeding 5000 hours, ensuring robust and reliable performance over extended periods of operation.



# TECHNICAL SPECIFICATIONS

ITEM	PARAMETERS
Voltage	220V±10%, single-phase 16A, 2.5KVA (110V is also available upon request)
Outline dimensions	99Kg (218lbs)
Weight (LxWxH)	870mm × 470mm × 440mm
Operating environment	Temperature: 20-25°C,
	Humidity: less than 70%
Argon purity	≥99.999%

# OES OPTICAL EMISSION SPECTROMETER

## QualiSpark 1000



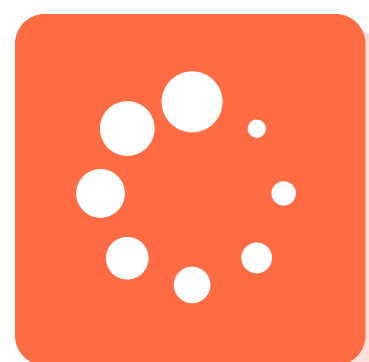
**The OES Optical Emission Spectrometer - OES QualiSpark 1000** is widely used for production process control and finished product lab testing in various industries, including metallurgy, casting, machinery, and metal processing.

It serves as an invaluable tool for conducting chemical composition analyses of metals and alloys, such as Iron, Aluminum, Copper, Nickel, Cobalt, Magnesium, Titanium, Zinc, Lead, Tin, Silver, and more.

This exceptional instrument features remarkable stability, a low detection limit, rapid analysis capabilities, cost-effective operation, and straightforward maintenance procedures.

Moreover, it exhibits robust anti-interference capabilities, making it an indispensable asset for your analytical needs.

## PRODUCT ADVANTAGES



**Versatile Spark Table Technology:** Powered by a digital solid-state spark source with adjustable power and frequency. It features a constant temperature design with argon gas circulation, ensuring consistent performance and protection against cooling water effects. Integrated safety equipment keeps hazardous excitations at bay.



**Easy Maintenance and Reliability:** The copper base allows easy disassembly and cleaning, and it can analyze samples of different shapes, enhancing versatility. The weapon lens isolating valve prevents optical chamber contamination and facilitates easy lens replacement. The unique discharge chamber design ensures optimal discharges, with a tungsten-crafted exciting electrode for reliability.



**Advanced Vacuum Optical System:** Utilize Paschen-Runge mounting and a Super Luminescent holographic grating, covers a wavelength range of 120 to 800 nm. With a focal length of 750 mm and 2,400 grooves/mm grating, it offers precise spectral analysis. Easy adjustments across the PMT optical system slits simplify debugging. Top-quality components and a reliable vacuum pump ensure optimal operation. The low thermal expansion optical chamber features a vacuum valve and filter to maintain system integrity.



**High-Precision Negative High Voltage Power Supply:** Our high-precision negative high voltage power supply features a continuously adjustable technique with  $\leq 0.01\%$  resolution. Independent power supplies eliminate PMT interference, and software-controlled adjustments expand the analysis range for enhanced versatility.



**Monitoring System and Temperature Control:** Offers real-time control and display of instrument states. The independent constant temperature system for the light room, electronic unit, and spark table ensures stability. The two-stage automatic constant temperature system reduces preheating time and enhances stability, maintaining temperature fluctuation within  $\pm 0.1^\circ\text{C}$  for consistent, accurate results.



**Spark Source and Detection System:** Our Single Discharge Analysis (SDA) features a multicenter synchronization system for enhanced stability. Delay integral techniques provide distinct channels with precise initialization times. The interior constant temperature system ensures accuracy with a resolution of  $\pm 0.1^\circ\text{C}$ . The adjustable spark source caters to different materials, and the modular circuit design simplifies maintenance and allows long-distance diagnosis.

## PRODUCT FEATURES

### Optimized Performance:

- Original Position Single Spark Discharge Analysis (SDA) technology enhances precision.
- A veneer-pattern lens frame minimizes optical chamber pollution, while a solid-state adsorption trap prevents oil gas contamination, improving long-term stability.
- Variable delay integration technology reduces background interference, ensuring accurate results.
- The new lightroom structure facilitates testing of long and short wave elements, expanding analytical capabilities.

### Enhanced Durability and Maintenance:

- The copper-base spark table improves heat emission and durability.
- Special materials used in the vacuum lightroom result in a low thermal expansion coefficient, reducing temperature fluctuations.
- An interior fatigue backlight reduces the impact of photomultiplier dark current, extending service life.
- The coaxial spark table features an optimized gas circuit, reducing argon consumption and enhancing data stability.

### Efficient Operation and Control:

- A green background light enhances response speed and short-term precision.
- An automatic tracing system streamlines analysis efficiency with both auto and manual tracing.
- The negative high-voltage power supply with high-precision PMT is software-adjustable for an improved dynamic range.

## THEORY/METHOD

### Comprehensive Software Capabilities

Our software offers versatile calculation curves for various calibrations across different matrices. The inclusion of third-element interference correction enhances the accuracy of your results.

### Software Operations

- Easily set up and modify analysis programs to tailor to your requirements.
- Choose from various output styles, including intensities, intensity ratios, uncorrected concentrations, corrected concentrations, and more.
- Select preferred output units for added flexibility.
- Implement global standardization or opt for mini standardization based on your analytical needs.
- Our software incorporates interference correction, enhancing result reliability.
- Print over 100 spark results, including averages, standard deviations (STD), and relative standard deviations (RSD).
- Access a comprehensive standard database for reference.
- Perform statistical analysis calculations effortlessly.
- The software supports English result outputs.
- Seamlessly translate data into Microsoft Office file formats.
- Store data directly on your hard disk for convenient access and archiving.
- Establish connections with external computers or central systems for enhanced data management and integration.

## TECHNICAL SPECIFICATIONS

ITEM	PARAMETERS
Voltage	220V±10%, single phase, 16A, 2.5KVA (110V available upon request)
<b>Dimensions</b>	
Length	1390mm (54.72 inches)
Width	800mm (31.50 inches)
Height	1170mm (46.06 inches)
Weight	400Kg (881.85lbs)
<b>Working Environment</b>	
Temperature	20°C to 25°C
Humidity	Below 70%



# QUALITEST™

ADVANCED TESTING TECHNOLOGIES

## KEY QUALIBENEFITS



**Best Price Guarantee :** Qualitest is committed to delivering top-quality, competitive Atomic Absorption Spectrometers at unbeatable prices. Our confidence in providing the highest value for your investment is backed by a price match guarantee.



**Trusted Partner for Fortune 500 Companies :** Join the ranks of Fortune 500 companies who choose Qualitest as their trusted vendor. Benefit from tailored solutions and proven excellence, gaining a strategic edge for business success.



**Efficient Global Logistics :** Enjoy quick delivery of standard products through our extensive network of worldwide distribution centers. Our high shipping volume enables us to offer the most competitive rates for global delivery.



**Centralized Service & Support Coordination :** Our central service department manages efficient customer service support directly or through our global QualiService authorized network, ensuring seamless assistance.



**Exceeding Standards :** Qualitest products are meticulously crafted to not only meet but surpass North American and global standards, ensuring uncompromised quality. Our dedication to excellence drives every aspect of our production process.



**Qualitest Finance Packages :** Explore affordable payment plans and flexible options through our QualiFinance program, making quality products and solutions accessible without compromising your budget.



USA | CANADA | UAE | GCC | EU | INDIA | APAC | AFRICA | LATIN AMERICA

## Connect with us

Contact our **QualiTeam** today to find out how we can help your organization **select the most suitable testing solution** for your application, requirements, and budget.

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