

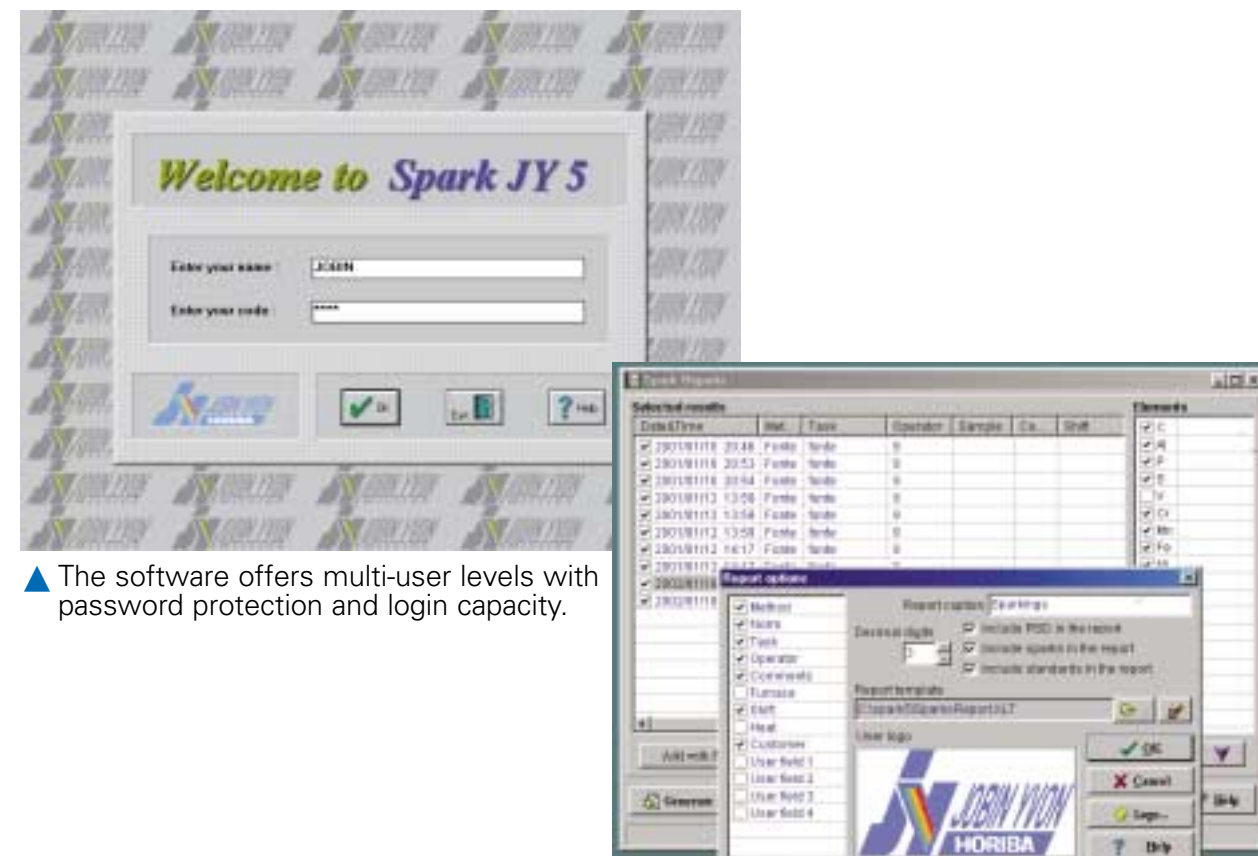
METALYS SPARK EMISSION SPECTROMETER

ANALYSIS UNDER CONTROL

Whether you are analyzing alloys in the heart of a foundry, performing QC of incoming materials and finished products in a laboratory or perfecting a new manufacturing process in R&D the METALYS will provide the flexibility you need to be in control of your analysis at every stage with an instrument you can count on. All backed by a worldwide platform of support through the ALLIANCE Service Program featuring an online parts catalog and WorldLink User Forum.

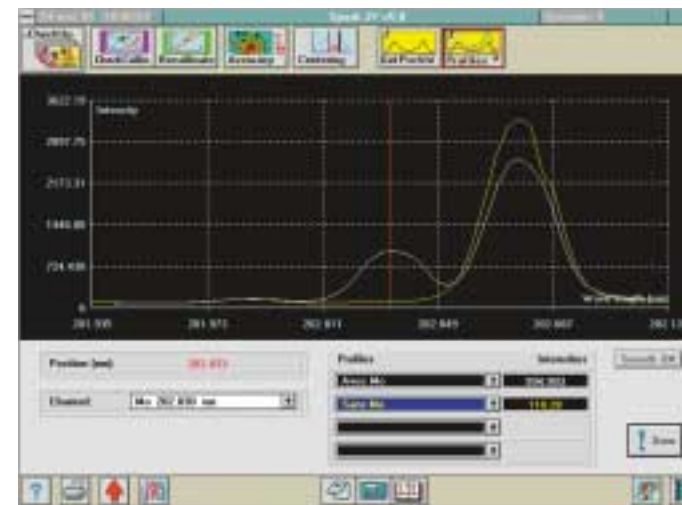
Simplicity of operation through well-defined procedures.

- Nine operation levels.
- Prepare the tasks for the METALYS by setting up the working procedures and specifying your quality requirements.
- Single key operation is then used to automatically implement your tasks.
- On-line monitoring of controls guarantees the validity of your results. The use of "traffic light" indicators provides an immediate visual feedback on the quality of the data compared to the defined quality requirements.
- Statistical process control is built-in to the METALYS software with special attention to ease of use and graphics quality.
- Accurate, reliable data is organized and presented in easily customizable formats with the JY report generator.



▲ The software offers multi-user levels with password protection and login capacity.

▲ The JY report generator makes use of customized templates for daily reporting while storing data and instrument controls for traceability.



▲ The patented PolyScan function allows profile acquisitions of the spectrum around ± 1 nm on any of the lines selected on the polychromator. Shown above are spectra of 2 samples around the fixed Mo channel. Only one sample contains Mo while both samples show the presence of a Fe line close by.



▲ Metal Maker software makes production of accurate alloys easy and fast.

Measurement results

▲ The three columns on the right are defined below. Each uses green, yellow and red as immediate visual indicators on the data quality.

- 1) Within the calibration range,
- 2) Reproducibility of the replicate measurements,
- 3) Accordance to the norm.



▲ Statistical Process Control (SPC) allows control of the entire process through to production and is useful for the verification of instrument performance.

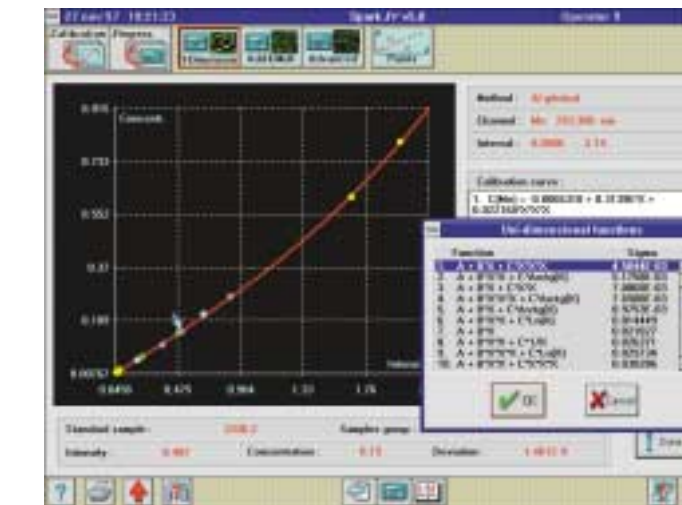


▲ Metal Maker provides automatic charge calculation and exact assistance for the manufacture of accurate alloys based on a defined composition.

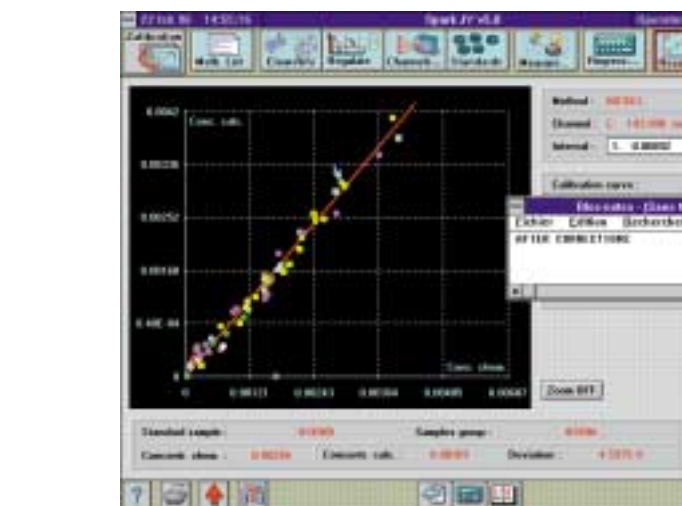
Discover JY as your Analytical Partner

Calibration quality

Accurate results can only be obtained through high quality calibration of the instrument. The METALYS can be factory calibrated according to your analytical requirements using the JY library of several hundred reference materials. Analytical programs are delivered with the set up samples required for standardization.



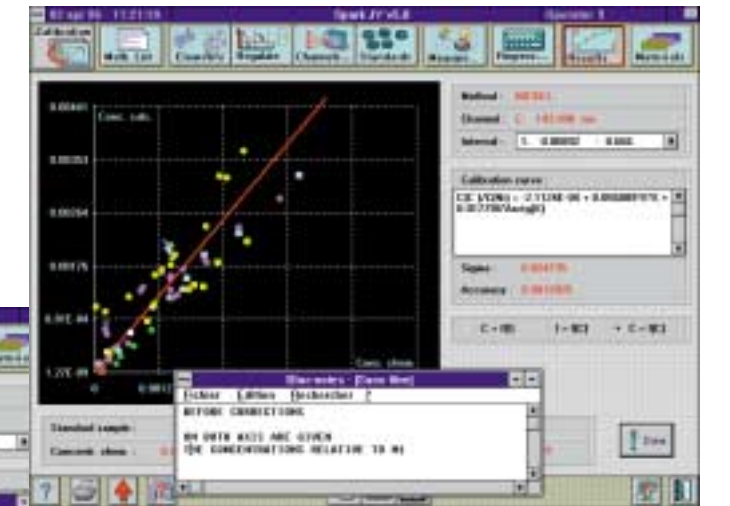
▲ The software automatically proposes the best calibration curve, but the user has the final choice.



▲ The same curve following determination and calculation of interferences.



JY strengthens the partnership with the ALLIANCE Service Program. ALLIANCE is an extension of JY to your company where your goals become our goals through our commitment to the continued successful operation of your instrument and the support to your operators. Visit www.jyhoriba.com/emission/alliance today.

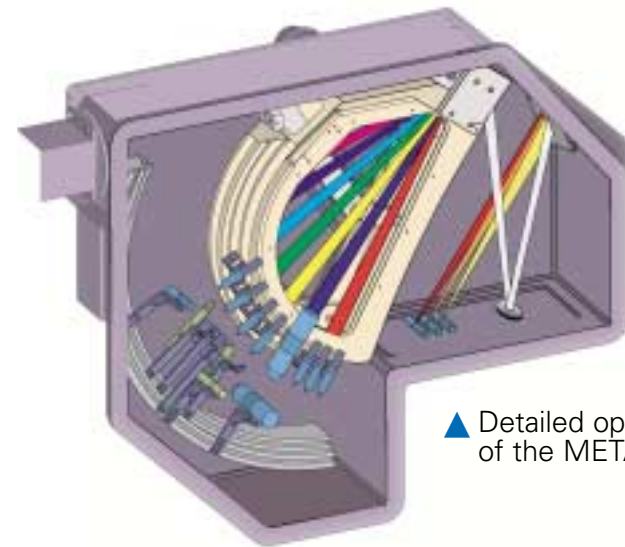


▲ A curve before correction.

Automatic interference identification

The software uses certified reference materials, not binaries that have a different structure to the samples being analyzed. The software performs automatic identification and correction of interferences, as well as estimating and minimizing the empirical risks of invalid corrections, thus providing true analytical values.

Quality and Experience in Every Instrument



▲ Detailed optical assembly of the METALYS.

- The spark stand has a low Argon consumption of less than 3L/min during analysis.
- The spark stand offers easy removal and replacement for rapid cleaning.
- Rugged and powerful excitation source – immune to variations in line voltage.
- Provides excellent stability, even with the typically short total analysis time of less than 10 seconds.
- Direct observation of the sparking area allows collection of maximum light across the spectral range.
- Most of the particles generated during the sparking process are filtered and automatically removed. Some particles however can be deposited on the optical interface separating the polychromator from the spark chamber. The METALYS has excellent accessibility to the entrance optics, with removable mounting allowing cleaning without loss of optical transparency.
- The METALYS is equipped with a Jobin Yvon ion-etched, blazed holographic grating. The grating guarantees the best detection limits for every instrument.
- Using 3600 gr/mm and high efficiency in two orders, the grating used within the optical system provides extremely high resolution.
- Resolution is not sacrificed when the alkali elements are measured. By adding a second optic dedicated to the infrared spectrum, the instrument offers the widest possible spectral range.

Spectrometer

- Paschen-Runge optical mounting
- Optics cast in Ni Resist with a low coefficient of thermal expansion
- Thermally stabilized to $\pm 0.1^\circ\text{C}$
- Focal length: 50 cm
- Nitrogen purged. No vacuum required
- JY ion-etched holographic 3600 grooves/mm grating
- Spectral range: 162-420 in first order
120-210 in second order
- Resolution 0.028 nm in first order
0.014 nm in second order
- Additional polychromator (flat field mounting) for analysis of alkali elements with JY holographic grating, 1200 grooves/mm
- Metallic mask with more than 290 pre-etched secondary slits
- Up to 47 optical channels
- Patented Polyscan allows automatic scanning around all mounted channels

Spark stand

- Low Argon usage < 3L/mn during analysis
- Removable spark stand
- Dust recovery
- Sample weight up to 35 kg

Excitation source

- Immune to variations in line power ($\pm 20\%$)
- Unidirectional discharge with high energy prespark
- Discharge parameters optimized for different matrices
- Specific excitation of major and trace elements

Data acquisition circuitry

- Modular set
- Linear measurement range up to $10^6/\text{second}$
- Optimized detector power supply
- Control of movement and position of the primary slit (PolyScan system)

Computer system (Minimum configuration)

- Please contact your regional sales office for the most up to date computer configuration

Software

- Windows software
- Different levels of use, password protected
- Complete control of analytical procedures, operators work and validity of analytical data, according to customized specifications
- Self-explanatory icons and logical step-by-step procedures
- At the lowest level this means a single key-press for analysis
- Automatic identification of norms
- Charge calculation and corrections with minimum cost
- Automatic elimination of poor analyses

- Production Management and on-line monitoring of controls through high graphic quality, easy to use SPC (Statistical Process Control)
- Transmission of results using serial communications
- Multiple transmissions (special optional hardware configuration required)
- LIMS and networking compatibility
- Customized storage of data and instrument controls to allow full traceability and validity of analysis
- Reporting of results, analytical bulletins and data export in customized formats
- Study of spectra and qualitative analysis of unknown samples
- Study of conductive coatings
- Determination of instrumental precision
- Automatic calculation of calibration curves
- Automatic selection of curve depending upon the calibration range
- Automatic interference identification
- Estimation of empirical risks
- Automatic calculation of corrected curves with multivariable regressions

Options

- Shock absorbers for mechanical stability
- Optics Polychromator for alkali elements
 - Flat field optical mounting
 - Holographic grating for IR : 1200 grooves/mm
 - Spectral range 400-900 nm
- Nitrogen analysis (at 149.2nm) requires a special optical mounting (including a UV detector)
- Wire holder accessory for the analysis of wires with a diameter below 15mm. Delivered with 9 diameters of wire supports and 3 boron nitride inserts (for electrical insulation)
- Spark table for small samples, delivered with 3 ceramic inserts (diameters 3,4,5 mm)
- Transmission of results to remote terminals
- Line regulator for computer and Spectralink in case of minor line disturbances
- Uninterrupted power supply 3kVA generating a stabilized voltage for the whole instrument in case of major disturbances
- Sample preparation machines such as lathes, punch and die grinders, etc.
- Gas purifier for Argon. Ensures high quality Argon
- Nitrogen generator

Physical Data

- 105cm (length) x 90cm (width) x 111cm (height), 220kg (weight)
- 42in (length) x 36in (width) x 44in (height), 605lbs (weight)
- Electric: 220V, single phase, 16A, 2kW consumption

Specifications subject to change without notice.



Over 180 years of optical experience go into each and every JY spectrometer made.

- The use of a metal mask for secondary slits allows simple on-site addition of further analytical channels should the instrument requirements change in the future.
- The optical assembly is thermally regulated and mounted on shock absorbers to guarantee stability even in very demanding environments, such as foundries.



JY RECEIVED THE PRESTIGIOUS
NASA EXCELLENCE AWARD

Over 180 years of JY optical experience provides the platform for NASA projects. This same quality is at the heart of every METALYS instrument.

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Metalys

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