BRUKER



XRF

S6 JAGUAR

Spectrometry Solutions

Innovation with Integrity

S6 JAGUAR –
Outstanding Performance.
Impressive Versatility.
Compact Design.



S6 JAGUAR EasyLoad with 24-position sample magazine

S6 JAGUAR manual sample handling

S6 JAGUAR offers full-blown WDXRF analytical performance in a compact benchtop system

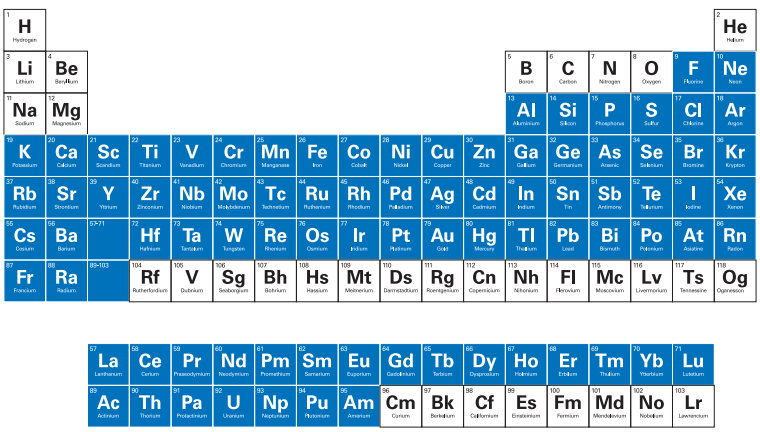
The S6 JAGUAR combines excellent analytical performance based on cutting edge technology with compact size and plug-and-analyze installation.

S6 JAGUAR – the industry-ready WDXRF analyzer

The S6 JAGUAR offers more analytical power than any other compact WDXRF instrument. It features a new compact goniometer, closely coupled optics and 400 W direct excitation power. The S6 JAGUAR delivers excellent accuracy and precision based on the brand new HighSense XE detector with its ultimate linear range of two million cps. Its system components are well protected by our proven SampleCare technology, ensuring highest instrument uptime and lowest cost of operation, especially when running liquid or powder samples.

S6 JAGUAR – versatility for research and academia

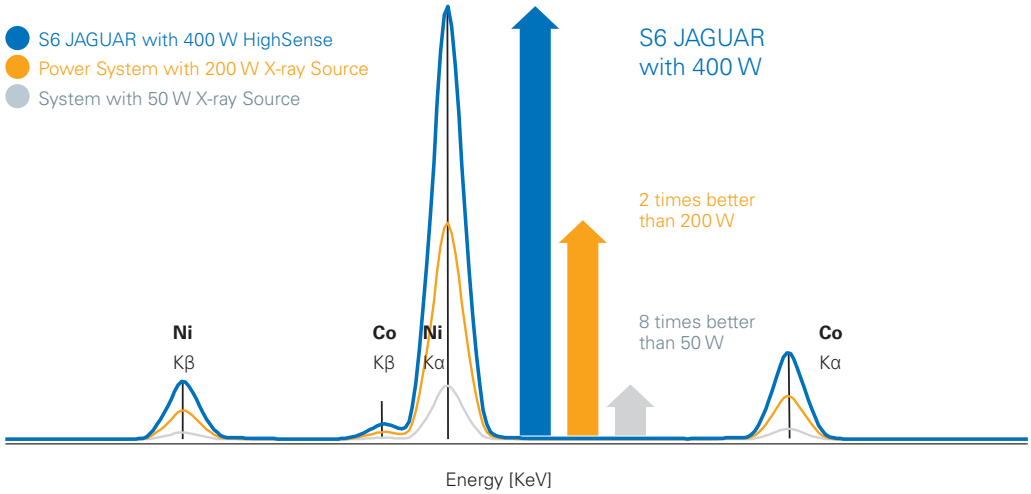
The new compact WDXRF goniometer with its HighSense technology enhances both, sensitivity and spectral resolution, providing the analytical flexibility and performance for academia and material research. With up to four sample masks for different sample sizes, up to four analyzer crystals, and two detectors, the S6 JAGUAR enables fast multi-element analysis for the entire concentration range from ppm to 100%. The standardless quantitation software SMART-QUANT WD, based on new powerful fundamental parameter algorithms, delivers accurate results even for unknown samples.



Element range from fluorine to americium

Latest Innovation HighSense Technology for Higher Sensivity, Superior Flexibility and Better Results





1 Higher sample throughput, enhanced analytical precision, and better trace element detection with **400 W HighSense™ power** compared to 200 W

- 50% shorter measurement times and twice the sample throughput
- 30% better analytical precision is provided with the 400 W
- The significantly higher sensitivity leads to more than 30% better detection limits
- Light element analysis is enhanced by more than 50% with full 400 W power at low kV

2 Unrivalled analytical performance with the **ultra compact HighSense™ goniometer**

- Higher element sensitivity and excellent WDXRF resolution with the ultra-compact beam path
- Accuracy and precision due to the high-performance gears

3 Perfect analytical flexibility with the **4-position crystal changer**

- High analytical performance is provided with three crystals for the entire element range: XS-55, PET, LiF200
- Enhanced sample throughput and detection limits with optional choice of a fourth crystal

4 Easy application setup with linear ranges of 2 Mcps with **HighSense™ detectors**

- Optimal detection of the entire element range with flow counter and HighSense XE
- From 100% down to the ppm range – straightforward single calibration
- Significantly reduced inter-element effects due to better energy resolution of HighSense XE

5 High instrument uptime with **SampleCare™**

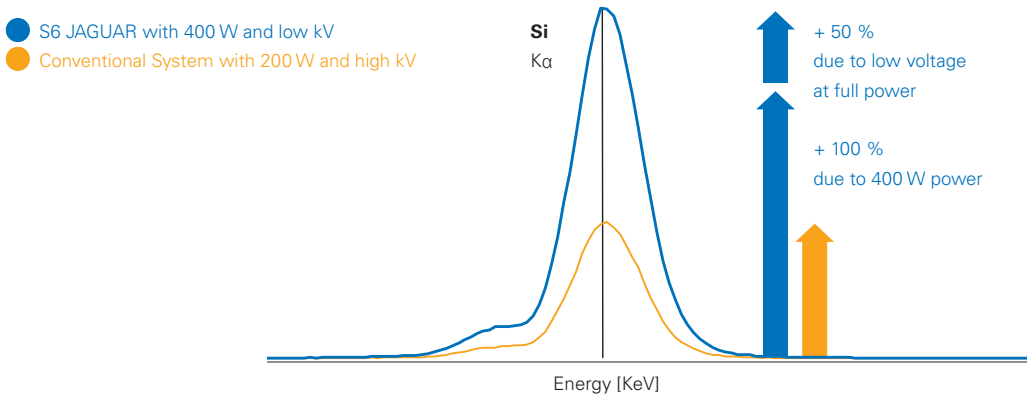
- Safe analysis of delicate samples with automatic sample recognition of the EasyLoad magazine
- Unique instrument protection due to contamination shields in front of the tube and goniometer
- Simple cleaning of chamber

6 Flexible and efficient automated sample handling with **EasyLoad™**

- State-of-the-art sample handling with 24 positions max, 20 positions on a removable tray and 4 fixed positions
- 15-position for automated handling of larger, heavier or irregularly shaped samples
- Automation-ready with AXSCOM interface and port for sample feeding by belt or robot

7 Easy, intuitive and failsafe operation with **TouchControl™**

- IslandMode™ without external PC
- Remote access via TCP/IP
- Languages: English, German, French, Spanish, Italian, Portuguese, Russian, Chinese, Japanese, Bahasa



S6 JAGUAR offers about 3 times more intensity due to optimized exitation with low voltage at full power

The HighSense Detectors can easily cover all concentrations with linear count rates of 2 Mcps

HighSense™ – More Power leads to Higher Precision and Faster Speed



400 W HighSense X-ray tube

Bruker's 400 W solution is twice as powerful as a 200 W system and 8 times more powerful than a 50 W system.

Increase sample throughput and quality of results – anytime at full power!

The major advantage of sequential WDXRF is that every single element is analyzed with optimal instrument parameters. And the S6 JAGUAR is the master of analytical flexibility: The direct excitation power of 400 W leads to excellent element sensitivity without compromise. Full power is available at 30 kV for light elements and 50 kV for heavy elements!

Make the analysis of totally unknown samples simple, just with better detection!

Just applying high-power excitation is not good enough: The S6 JAGUAR with HighSense detector technology easily covers the entire concentration range with linear count rates of 2 Mcps in one calibration. The HighSense XE detector for heavy elements even comes with a two times better energy resolution than conventional counters, significantly reducing inter-element effects.

Make the instrument a perfect fit, just by adding an additional analyzer crystal

Don't accept the standard: To cover the entire element range in WDXRF three analyzer crystals are required. But for challenging applications, a fourth crystal will make the instrument a perfect fit. The S6 JAGUAR's HighSense goniometer is equipped with a four-position crystal changer, enabling the upgrade of the S6 JAGUAR to higher performance for specific applications:

- Germanium to boost sample throughput for P and S, e.g. for ASTM D2622
- XS-400 to add 35% more intensity for elements from K – Am
- LiF 220 for better resolution and trace element detection from V – Am

For lower limits of detection of heavy elements, the different filters in the five-position filter changer enhances the peak-to-background ratio!

Match your needs with the unsurpassed analytical flexibility of the S6 JAGUAR

Complex made simple with high resolution and HighSense technology

There is no doubt: The S6 JAGUAR with the HighSense goniometer and its high spectral resolution clearly separates neighboring lines and reduces severe line overlaps. Equipped with optimal analyzer crystals, the S6 JAGUAR easily measures complex sample spectra and masters difficult samples, such as minerals and ores in geological applications and metal alloys.

The WDXRF spectrometer S6 JAGUAR manages even complicated applications with its unique HighSense technology



EasyLoad tray for 20 samples

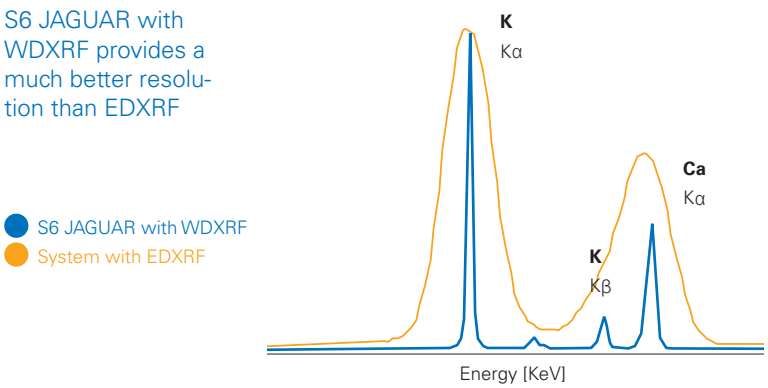


EasyLoad ONLINE for automation with two additional parking positions

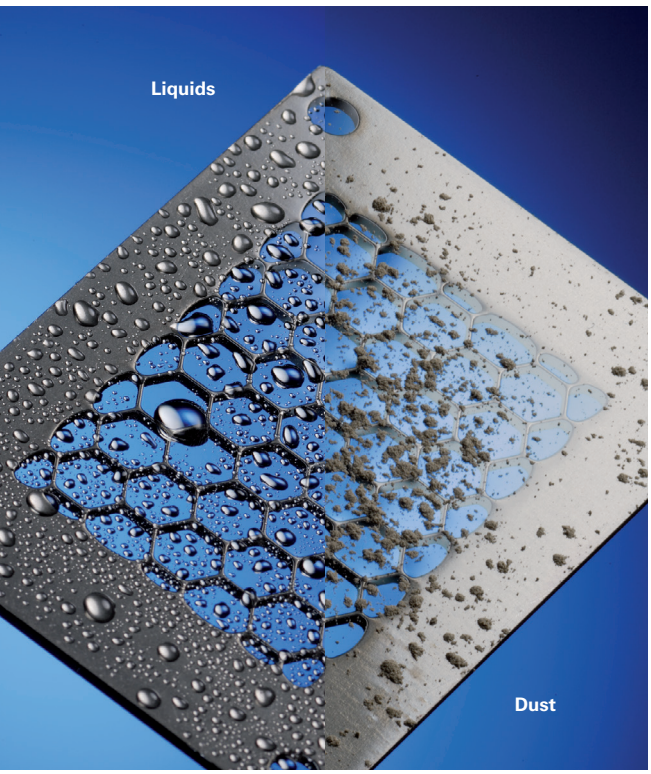


S6 JAGUAR manual sample handling

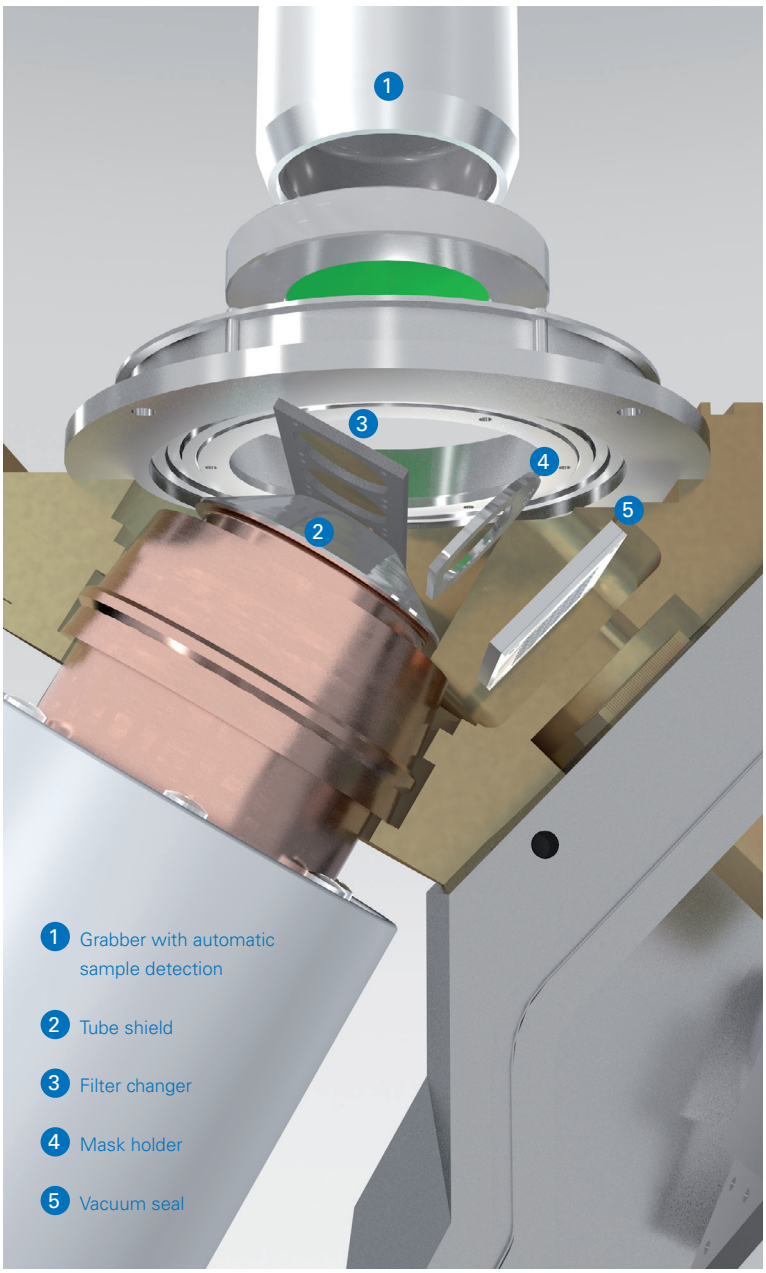
S6 JAGUAR with WDXRF provides a much better resolution than EDXRF



SampleCare™ andTouchControl™ for Easy Routine Operation and Independent IslandMode



SampleCare™ vacuum seal to protect against powders and liquids



1. Grabber with automatic sample detection
2. Tube shield
3. Filter changer
4. Mask holder
5. Vacuum seal

Better protection increases uptime and reliability. When needed, cleaning is very simple.

Running liquid samples, loose powders or pressed pellets? S6 JAGUAR handles them all!

Instrument uptime and low cost of operation are crucial to you. And you can rely on the S6 JAGUAR with Bruker's unique SampleCare™ technology.

The liquid sample detection of EasyLoad disables vacuum for liquids. Then, a shield protects the X-ray tube when loading a sample. Next, the vacuum seal protects the goniometer from spillage and dust by separating the sample and goniometer chamber. In addition, the vacuum seal lowers the consumption of helium for liquid analysis significantly.

Thanks to TouchControl™, the operation of the S6 JAGUAR is easy and straightforward. TouchControl enables users with minimal training to run routine samples, while restricting access to the configuration and calibrations. An external PC allows for full instrument control through remote access. This combines ease-of-use ith optimal data integrity

S6 JAGUAR – a great deal of reliability and efficiency with SampleCare and TouchControl

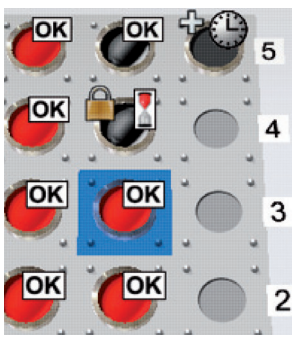


TouchControl operation of S6 JAGUAR, available for all configurations

1. Full instrument control: Routine operation and instrument setup without external PC.



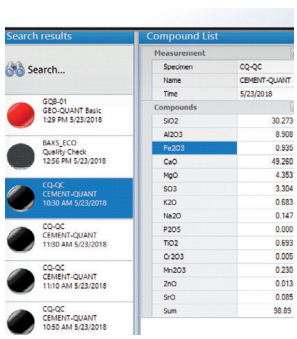
2. Select a position and the routine application, name the sample ...



3. ... and press "Start". Start single samples or batches



4. Quick access to previous measurements via database search and direct printout



Bruker redefines Ease-of-use with the unique TouchControl and SampleCare.

SPECTRA.ELEMENTS
Easy. Fast.
Smart. Powerful.

Intuitive, Easy, and Fast

An intuitive, fast, and stable user interface is the basis for the smooth operation of analytical equipment and, thus, adds a real benefit to your lab by saving time. At Bruker, we take this seriously. Getting started with SPECTRA.ELEMENTS requires only minimal training and running routine analysis is as easy as 1-2-3.

SPECTRA.ELEMENTS offers all its functionality through one main window. All features are organized on tabs, which can be accessed from anywhere in the software. Contemporary programming results in rapid data processing and an overall smooth user experience. Waiting and watching a spinning hourglass is a thing of the past!

Powerful, Smart, and Versatile

While ease-of-use and speed are important for routine measurements, analytical performance and versatility is a must. With the S6 JAGUAR running on SPECTRA.ELEMENTS, you get both!

Flexible customization options to adapt calibrations for sample types, precision requirements or analysis goals via Applications and the Evaluation Plug-In.

- Dedicated User Levels ensure smooth operation, compliant with your data management strategy
- A customizable Basic Mode allows you to hide features that are not required for routine analysis
- Blanks, duplicates, and quality checks can be set up for process and quality control
- 21 CFR Part 11 compliance for product quality applications in FDA-regulated industries (optional)
- Optional IQ/OQ procedures are offered with the installation of the instrument
- LIMS-compatible: AXSCOM enables communication with process control units for full integration into automated environments

SMART-QUANT WD Covers It All

SMART-QUANT WD is the standardless solution for elemental analysis of unknown samples and samples without available calibration standards in your lab.

- Sample types: liquids and solids
- Atmospheric modes: helium, vacuum
- Elemental range: F to U
- Concentration range: ppm to 100%
- Max. generator voltage: 50 kV
- Max. Tube current: 17 mA

Performance Meets Ease-of-Use

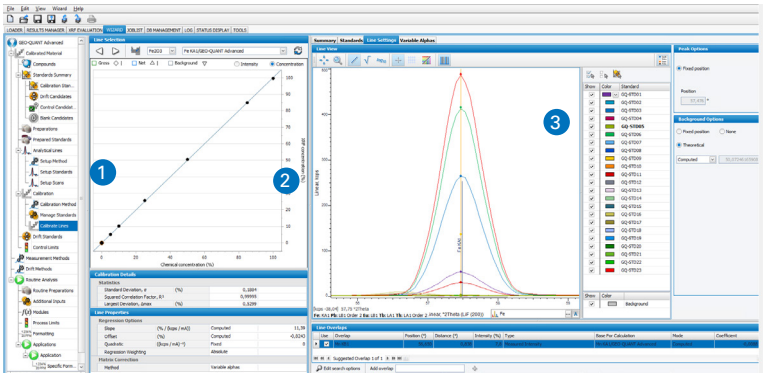
SMART-QUANT WD uses Variable Alphas, which compensate for matrix effects based on Fundamental Parameter (FP) calculations; no additional calibration necessary. The FP algorithm is based on state-of-the-art calculations, delivering accurate results with the push of a button.

SMART-QUANT WD delivers reliable results even with minimal user input: Load a sample, select the solution, press start!

If desired, the Evaluation Plug-In allows you to optimize the algorithm and re-evaluate the measurements.

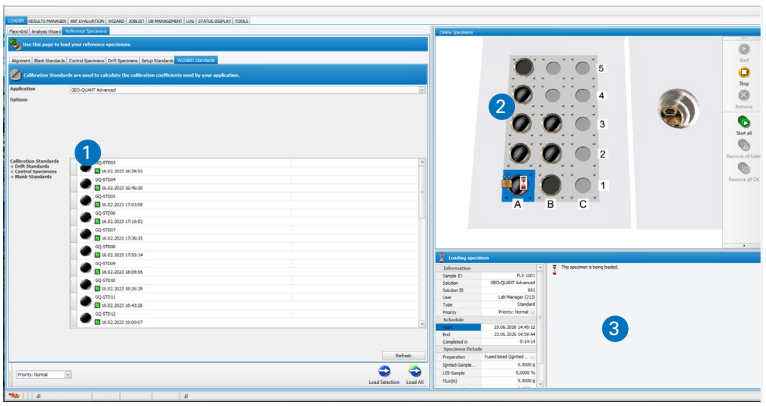
The WIZARD – Calibrate your system intuitively!

1. The tree structure guides you through the calibration process quickly and efficiently
2. Interactive optimization: On-the-fly calculation and display of calibration curve
3. View spectra, zoom in and out, and select the best peak and background options



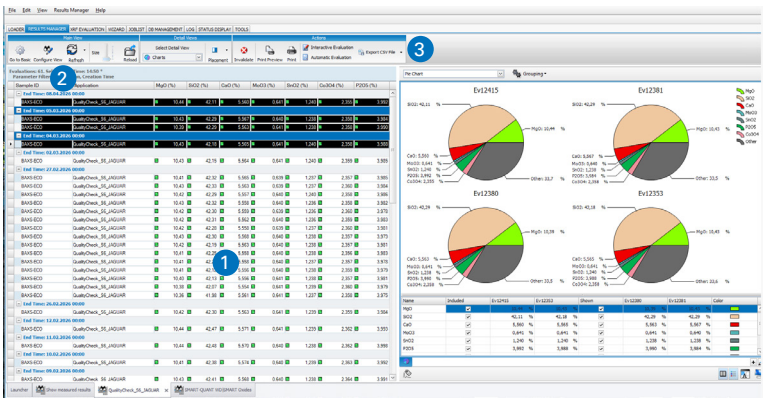
The LOADER – Start your measurements, easily and quickly!

1. Select the method and load the samples
2. Start and schedule your measurements – as easy as pie
3. Quick-view results



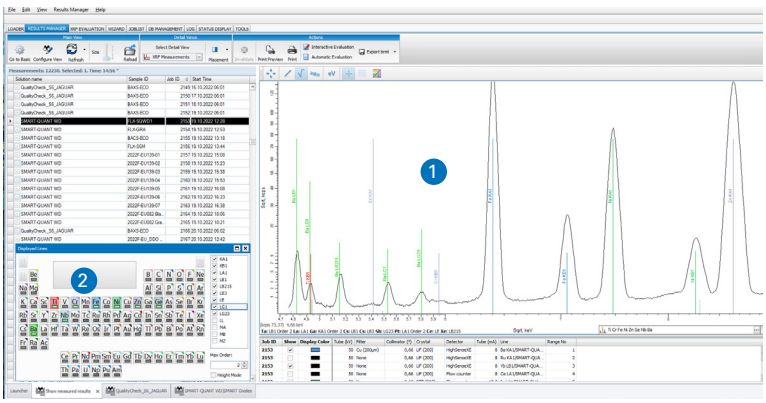
The RESULTS MANAGER – Access your data quickly and get extended reporting

1. Query, display, analyze, print, and export your data
2. Use the Post-Processing tool to automatically export data
3. Use the Evaluation Plug-In for re-evaluation without re-measuring



Customize your Views

1. Define the views and reports you need to make your evaluation procedure faster and easier
2. Various graphical options are available – including global color-coding for the elements of interest



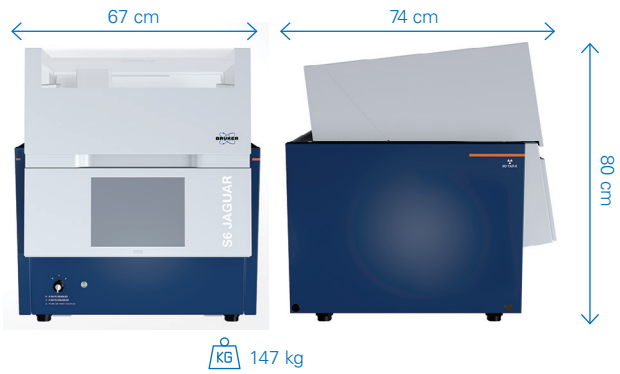
Features and Benefits

	Specification	Benefit
HighSense™ X-ray Power	400 W 50 kV max. 17 mA max.	Analytical performance (better precision and detection limits), optimal heavy element analysis and light element analysis with low kV, high mA at full power
Sample Sizes	Mask diameter: 34 mm standard Optional additional sample masks: 28 mm, 23 mm, 18 mm	Maximum intensity and analytical flexibility for a variety of different sample diameters
Primary Beam Filter*	Automatic 5-position beam filter changer, protection for X-ray tube window (Be-Filter)	Better detection limits due to enhanced peak-to-background ratio
	SampleCare™ tube protection	Tube shield at sample loading
Analyzer Crystals	XS-55 for F –Mg PET for Al – Cl LiF200 for K – U	Analytical flexibility for the entire element range
	Ge, XS-400*, LiF220*	Better detection limits, higher analytical precision, better spectral resolution
Detectors	Proportional counter	High sensitivity for light elements
	HighSense XE for Ti – Am	Linear range: 2 Mcps, two times better energy resolution
Vacuum Pump	Included, 265 mm x 180 mm x 489 mm	Low cost-of-operation
Helium Purge*		Liquid analysis
TouchControl™*	Intuitive TFT touch-screen user interface, adjustable Languages: English, German, French, Spanish, Portuguese, Italian, Russian, Chinese, Japanese, and Bahasa (others on request)	Failsafe operation and reduced operator training
Temperature Control Unit	Included, no additional chiller 466 mm x 190 mm x 630 mm	High analytical precision, better temperature stability
Power Supply	100 – 240 V, 50/60 Hz, max. 1 kVA	Standard wall plug
Quality & Safety	DIN EN ISO 9001:2015, DIN EN ISO 14001:2015, 2006/42/EC (CE-certified Machinery directive), 2014/35/EC (Electrical equipment), 2014/30/EC (Electromagnetic Compatibility), German Type Approval and Vollschutz according to BfS RöV, Fully radiation-protected system; radiation <1 µSv/h (H*), Compliant to ICRP, IAEA, EURATOM	

S6 JAGUAR Manual	**S6 JAGUAR** EasyLoad	**S6 JAGUAR** EasyLoad ONLINE	**S6 JAGUAR** 15 Position XY- loader
Manual sample loading	24-position XY- loader for 51.5 mm EasyLoad rings	22-position XY- loader for 51.5 mm EasyLoad rings	Autochanger for two-part sample cups

*) optional





Bruker AXS is continually improving its products and reserves the right to change specifications without notice.
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