

# Q4 TASMAN Series 2

- Advanced Benchtop Spark-Optical Emission Spectrometer

# Q4 TASMAN Series 2 – Ready-to-Use Benchtop Metals Analyzer

## Analytical Performance

Our engineers took every opportunity to further improve the analytical performance in the new Q4 TASMAN Series 2. The analytical range of the Q4 TASMAN Series 2 has been extended for many elements, and new element sets enable the analysis of new alloy types. Addressing the entire metals market, dedicated Analytical Solution Packages (ASPs) are available for all ten common metal bases: Fe, Al, Cu, Ni, Co, Pb, Sn, Zn, Mg, and Ti. These ASPs include full element sets, calibrations, alloy groups, and standardization samples. ASPs provide analytical performance that's precisely tuned for the metals world – and its future demands.

## SmartSpark™ – Advanced Digital Spark Source

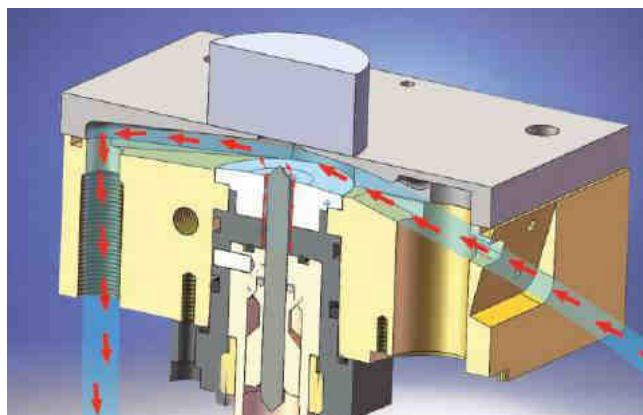
The optimized digital spark source in the Q4 TASMAN Series 2 produces ultra-stable sparks with a frequency up to 1,000 Hz and variable discharge times from 10  $\mu$ s to 2 ms. This contributes to improved analytical precision and shorter time-to-result. Additionally, SmartSpark™ allows spark parameter settings for application-specific fine tuning. Discharge shapes are tailored to the most efficient preparation of the sample surface, sample ablation and light emission. Matrix-optimized, high-energy pre-sparking is applied to homogenize the sample surface, reducing matrix effects and increasing accuracy. In conjunction with an optimized co-axial argon flow design in the spark stand, SmartSpark™ delivers improved long term stability with lower argon consumption.

## Stand with Flexibility Built In

The low-maintenance spark stand is freely accessible from three sides and equipped with a large and robust sample stage, making the correct positioning of even bulky samples easy. Co-axial argon flow directs the gas where it is needed: at the burn spot. This design eliminates the need for a standby gas flow and efficiently directs sample condensate away from the spark stand. At the same time, the analysis of small samples, wires, tubes and sheets by using adapters is simplified. The unique, pneumatically driven sample clamp supports sample heights of up to 120 mm while ensuring convenient sample handling with improved operational safety.



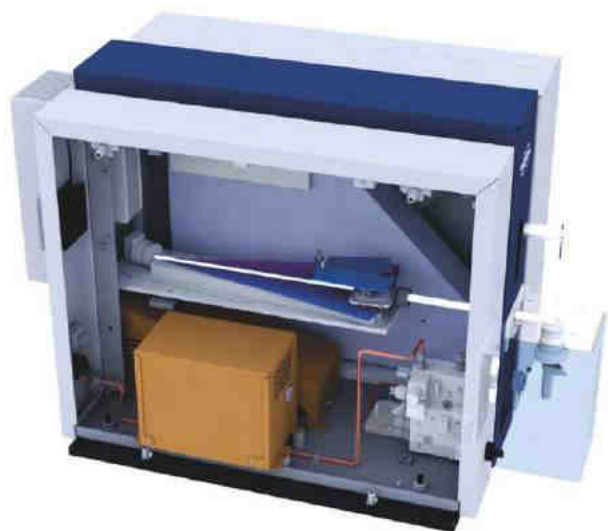
Q4 TASMAN Series 2 – Outstanding solution for all metal analysis needs



Co-axial argon flow: reduced consumption with minimized maintenance

# MultiVision™ – The Optimal Solution for Your Applications

Many elements, especially those of high importance in the iron and steel matrix, have their most efficient emission lines in the far ultraviolet (FUV) region, running from 120 – 200 nm. Radiation below 200 nm, also referred to as vacuum UV (VUV), gets attenuated or even blocked by most atmospheric gases. Thus, any VUV optics needs either high vacuum or an effective purge by an optically transparent, high-purity gas like argon. Extreme cleanliness and careful material selection are mandatory when



Superior, direct light coupling into the high efficiency VUV optics with small inner volume.

designing optics for the VUV range. Trace contamination (e.g. from materials outgassing volatile compounds) could immediately affect UV transparency, increase purge gas consumption, and permanently degrade performance in the long run.

The Q4 TASMAN Series 2 with its MultiVision™ design fulfills all these critical requirements. For optimal resolution of challenging analytical emission lines in respective ranges, MultiVision™ employs two dedicated optical systems:

- The no-purge UV/VIS-optics is connected by an optical fiber and covers wavelengths between 190 – 620 nm providing highest reliability.
- The VUV-optics is coupled via a superior short, and direct light path and precisely measures wavelengths from 130 to 200 nm at high resolution. Its small inner volume, an improved purge design and careful material selection ensures outstanding performance with reduced argon consumption and high reliability.

Both optics features temperature stabilization and an optional active thermal control system. The high-resolution CCDs employ a pixel pitch of 8 µm. The improved high-speed readout system ensures a high dynamic range, leading to very short measurement times.

MultiVision allows the optimal choice between three variants to match your analytical needs in the most economical way.

- **Q4 TASMAN 200** – Ideally suited for all non-ferrous applications. Here, elements in the UV range are typically not required.
- **Q4 TASMAN 170** – The choice for ferrous applications with important elements in the UV range, like C, P, S, As, Sn, and B.
- **Q4 TASMAN 130** – The most powerful variant, capable of analyzing VUV elements, like nitrogen (N) in steel and oxygen (O) in copper.

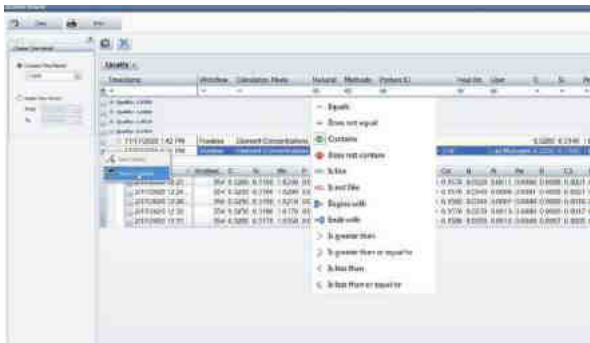
The Q4 TASMAN Series 2 provides the answers you need fast, using proven state-of-the-art technologies. Our engineers have designed innovative solutions that make the Q4 TASMAN Series 2 fully suitable not only for your dedicated applications, but also for many general-purpose applications.

Particularly in combination with the new version of ELEMENTAL.SUITE software, the Q4 TASMAN Series 2 lets you achieve results faster, easier, and more cost-effectively than ever before.

# ELEMENTAL.SUITE™ – Metal Analysis Made Easy



Easy-to-use and read screens with scalable font size



Analysis Viewer with grouping and advanced filtering



History chart for a control sample

The new version of the next generation software ELEMENTAL.SUITE combines high functionality with ease-of-use. All Bruker OES systems are operated by ELEMENTAL.SUITE, covering the entire range of applications. Its plugin-based architecture provides maximum flexibility for your analytical requirements, now and in the future. Features include:

- Easy-to-use screens with customizable skins, layouts, and scalable font sizes
- Integrated, powerful Analysis Viewer with data mining and reporting functionalities
- Statistical Process Control (SPC) allows you to set upper and lower limits for each element to easily monitor your process
- Advanced features like Regression Plug-in, Single Spark Viewer, and QC relevant history chart for control samples and standardization
- Professional reporting system for customized analysis reports
- Data Publishing: easily configurable universal export to remote SQL databases, csv, txt, LIMS
- Positive Material Identification (PMI) or sorting with pass/fail workflow
- Grade Libraries: Full integration of Total Material (optional) with export to internal grade library to customize your own alloy grades
- Multi-language capabilities with user and user-group management

## Intuitive Productivity

ELEMENTAL.SUITE assists you in your daily work. Automated average and limit checks ensure safe operation. Workflows guide you through complex tasks, like standardization and type standardization, without restricting routine operation. Saving, printing, reporting, and exporting your results is only one mouse click away.



### Analysis Viewer: Information at Your Fingertips

The new Analysis Viewer makes advanced data mining a snap. Queries to the database can be easily created, customized and stored. Powerful but easy-to-use grouping and filtering functionality on queries provide the flexibility of a pivot table. Queries to the Total Materia database, generation of SPC charts, reporting, printing, or exporting of selected results are always within easy reach. Exploring your data with different views becomes easy; filtering and grouping settings are saved for future use and can often be used in place of an expensive LIMS system.

### Universal Communication Talent

ELEMENTAL.SUITE comes with an advanced data publishing system. Beyond creation of reports or file-based data exchange, the new universal SQL-publishing module provides a flexible interface to L2 or LIMS systems. Your data is automatically, or manually on-demand, replicated to any SQL database, securely and in real time. Wizard-based creation of custom tables in the remote database makes setup of this interface easy: you just need to provide the logon credentials and define the data transformations you want.

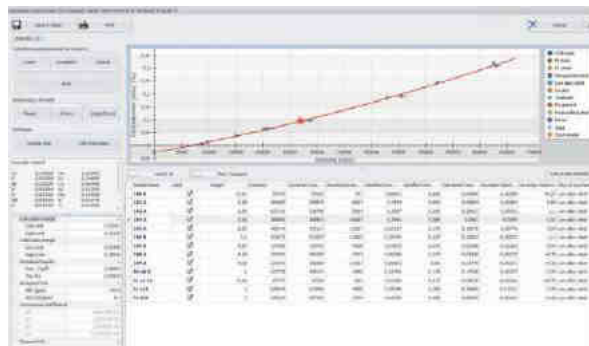
### Beyond Grade Libraries – Total Materia

In addition to its internal library for material qualities, ELEMENTAL.SUITE optionally integrates today's most comprehensive materials database: Total Materia. It gives access to more than 350,000 alloys from more than 75 countries/standards and is queried by a patented search algorithm.

### Solutions for a wide range of sample sizes and forms

A comprehensive set of adapter kits is available for the analysis of small pieces, tubes, wires and sheets. These adapters address the specific challenges of an optimal positioning over the electrode, while adjusting tightness to samples of different shapes and sizes.

Another option reduces the size of the spark stand opening by using ceramic inserts, allowing the direct measurement of samples with dimensions down to 6 mm.



ELEMENTAL.SUITE Regression Plug-in

Material	Standard	Grade	Density	Tensile Strength	Yield Strength	Elongation	Reduction of Area	Impact Energy	Hardness	Notes
X2CrNiMo17-12-2	EN	1.4404	7.9	515	205	10	40	10	150	
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Total Materia search results fully integrated in ELEMENTAL.SUITE

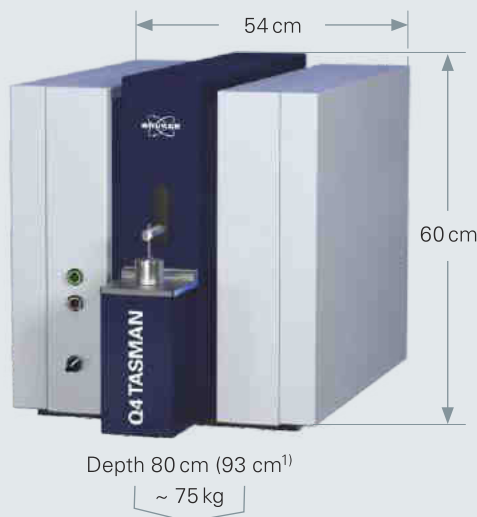
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Equivalent search within Total Materia



## Overview of Features and Benefits

	Specification	Benefit
<b>Spark Stand</b>	Low-maintenance spark stand with co-axial argon flow, large and robust sample stage, accessible from 3 sides	Minimized maintenance and argon consumption, easy analysis of wires and small pieces but also accepting bulky samples
Sample clamp	Pneumatically driven, 120 mm height	Hassle-free sample handling and improved operational safety
<b>SmartSpark™</b>	Optimized digital spark source for stable spark generation up to 1,000 Hz	Improved precision and stability
<b>MultiVision™ Optical System</b>	Dual optics concept with robust Paschen Runge mount, multi-chip systems with temperature stabilization	Optimal choice between 3 variants to fulfill individual analytical needs
VUV Optics	130 - 200 nm, Ar-purged	Outstanding performance with high resolution and low argon consumption
UV/VIS Optics	190 - 620 nm, no-purge	Reliability meets low cost of ownership
<b>Models</b>		
Q4 TASMAN 130	$\lambda$ : 130 - 620 nm	Best performance for N and O
Q4 TASMAN 170	$\lambda$ : 170 - 620 nm	Full capabilities with C, P, S, Sb, Te
Q4 TASMAN 200	$\lambda$ : 200 - 620 nm	Mastering non-ferrous metals analysis
<b>Electrical Data</b>	100 – 204 V ( $\pm$ 10%), 50-60 Hz 16 A (240 V) or 25 A (100 V) slow blow fuse 600 W measurement, 50 W standby	Compatible with all worldwide power and current configurations



<sup>1)</sup> With optional active thermal control system

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