

The New Laboratory Spectrometer for Metal Analysis

EXTRA FLEXIBLE

NEW NEW NEW



Belec has entirely re-designed the well established laboratory spectrometer.

The new **Belec Vario Lab** again sets a unique standard in terms of precision and flexibility as it has been continuously improved in order to fulfill today's needs for metal analysis.

It is - again - the most competitive in terms of flexibility as far as sample size and shape is concerned. Next to the fixed sparking stand it can be equipped with an additional sparking probe.

In order to reduce regular operating costs, Belec has designed a sparking table that consumes much less argon. In combination with the more powerful plasma generator it is hard to beat.

Routine maintenance efforts could be reduced with the new design. There are no headaches for you for installation preparation: It fits through standard doors and because of the reinforced plastic shell the weight has been greatly reduced. Still, with exceptional performance.

belec Vario Lab

RELIABLE. QUALITY. CONTROL.

Flexibility and Precision
for your Metal Analysis

Easy Operation

Thanks to a simple operating interface and Software Belec WIN 21 there are virtually no limitations. Any program feature can easily be selected and configured according to customer specific applications.

The integrated, dynamic alloy database is a standard feature of our software, like it has been for all belec spectrometers. The program identifies the grade of the analyzed material automatically. The database can be customized and extended without limitations

Two Models to select, depending on your needs

The variation, **Model 2P**, equipped with the traditional, highly sensitive Photomultiplier detectors, is the ideal tool whenever maximum precision, accuracy and low limit of detection are essentially required.

The second variation, the **Model 2C**, is equipped with the latest-state-of-art CCD detectors. Due to the flexible design it is recommended for any multi-base application.

Product Highlights

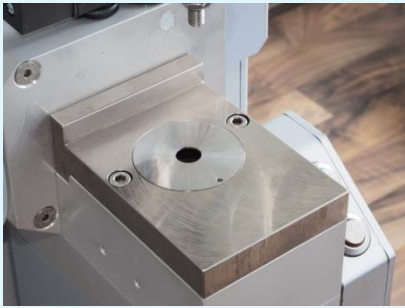
- Multi-Base capable
- reduced Analysis cycles
- small size and weight for a laboratory spectrometer
- unbeaten price/performance ratio
- very flexible for all kinds of sample sizes and shapes

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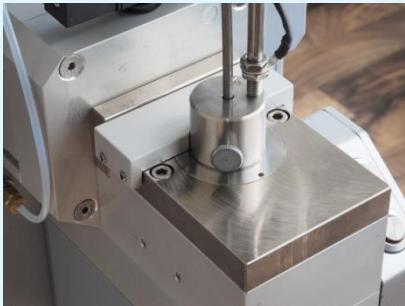
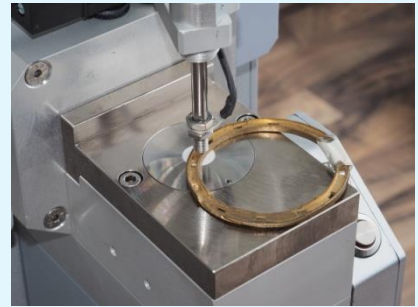
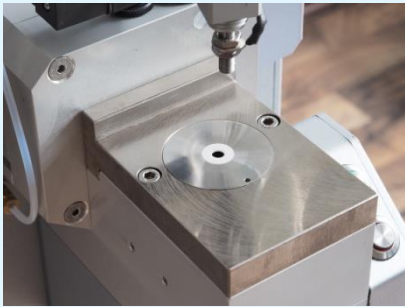
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Maximum Flexibility

The open sparking stand design of the Belec Vario Lab with easy access from three sides enables non-destructive tests of even huge and bulky specimen.

We can provide adapters for almost all kind of shapes and sizes.



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Belec Vario Lab - Technical Specifications

Optics

- spectrometer in Paschen-Runge mounting
- Rowland circle diameter 500 mm
- usable wavelengths 120-430 nm
- grating 3600 lines/mm
- reciprocal dispersion 0,52 nm/mm (1st order)
- shock resistance
- photomultiplier detector systems are $\pm 0.1^{\circ}\text{C}$ temperature stabilised for excellent long-term stability
- optionally 2nd spectrometer optics*
- up to 11 bases and 108 measuring channels possible
- inert gas-breathed optical chamber with gas purifier system
- optional optic with usable wavelengths up to 800 nm*

Vacuum System*

- 2 stage rotary vacuum pump
- large oil separator
- oil vapor trap
- vacuum gauge in front panel

Source

- sparking generator with maximum 400 Hz frequency
- unipolar discharge
- separate parameter for pre-sparking and integration selectable via software
- ignition frequency program specifically selectable via software
- discharge power program specifically selectable via software
- arc source for air probe, optional
- ignition voltage 20 kV

Measuring Stand

- argon-flushed measuring stand for exact analysis
- sparking stand grounded with \varnothing 10 mm analysis opening,
- optional ceramic disc with \varnothing 4mm opening*
- adapters for wires, pipes and small parts are available
- low-wear tungsten electrode
- pneumatic sample clamping
- argon flow 0,1 l/min in stand-by mode and 2 l/min during analysis
- low maintenance required

Electronics (Model 2P)

- stabilized high voltage
- zero-stabilized analogue amplifier
- 6-decade dynamic A-D converter for each channel
- 48 channels with digital integration, configurable for several bases

Electronics (Model 2C)

- 15 detectors, each with 3648 pixel, 7 μ pixel width
- individual AD- converter board for each detector, mounted on multi channel board, coupled by high-speed port
- Integrated noise suppression - integrated background compensation
- unlimited numbers of measuring channels, configurable for several base

Probes*

- argon-flushed sparking probe for exact analysis, including carbon
- argon flow 0,1 l / min in standby and 2,5 l / min during analysis
- argon control on cable plug
- air probe for quick mix-up checking
- adapters for wires, pipes and small parts available for all probes
- lightweight shockproof plastic probe housing
- start and clear buttons easily hand-operated
- signal on mix-up identification: visual display for "repeat" and "reject", start button is blocked until confirm button is pressed
- multi fibre quartz optics, standard lengths 3m or 5m
- low-wear tungsten electrode
- silver electrode for air probe
- probe connector system

Power Supply

- 230V/50Hz or 110V/60Hz
- 100 W in stand-by mode
- 600 W during analysis
with optional vacuum system
- 600 W in stand-by mode
- 1100 W during analysis

Computer Hardware

- System-integrated industrial computer system
- Intel® ATOM® single core N270 (1.66 GHz) processor
- 2 GB RAM and 2.5" Solid-State-Drive (SSD) 128GB
- Onboard Intel® graphic 945 express with VGA output
- MS Windows 7 ultimate® operation system with client specific regional and language settings
- Remote-Service-System (RSS) by Teamviewer®
- 15" external TFT colour display
- Complete external keyboard with touch pad
- USB 2.0 ports
- Ethernet interface RJ 45, 100 Mbit/sec
- Serial port
- Parallel port

Dimensions

- width 680 mm
- height 1135mm
- depth 945 mm

Weight

- 80 kg

Software

- Belec WIN 21 analysis and quality control program
- arbitrary operating system, e.g. MS Windows 7
- Remote-Service-System*
- display of analysis values at each measurement
- as many analysis programs to customer specifications as required
- individual analysis parameters for each program
- automatic program selection (APF)*
- analysis computation with: background correction, curve position correction, additive and multiplicative inter-element correction
- automatic correction with standard types
- easy and simultaneous recalibration of several programs
- mix-up checking by comparison with reference measurement
- grade checking by comparison with analysis regulations
- type calibration and type measurement
- tolerances for every analysis program and element in absolute and relative weight percentages, individually adjustable
- average and standard deviation from chosen measurements
- warning signal, when calibration curve is exceeded
- automatic reminder of regular recalibration
- automatic display of quality description or material number
- alloy data bank, 100.000 qualities and more storable (only limited by computer storage capacity)
- text size on monitor variable for optimum legibility
- protocol storage function
- report memory function for later analysis, printing and archiving
- several statistic functions with graphical representation

*optional

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