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Belec Vario Lab

*The Laboratory Spectrometer
for Metal Analysis*

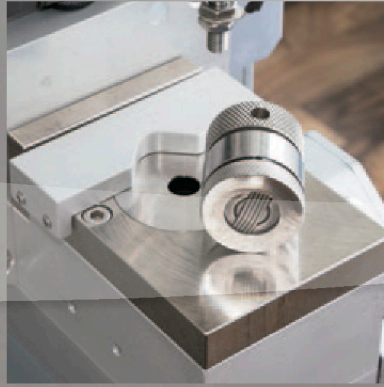
SPEKTROMETRIE OPTO-ELEKTRONIK
belec

RELIABLE. QUALITY. CONTROL.

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.



Ultimate Metal Analysis

The **Belec Vario Lab** sets a unique standard in terms of precision and flexibility to fulfill today's needs for metal analysis.

It is 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.

For the analysis of big, bulky or indestructible samples, different sparking probes are available. With this unique option, the Belec Vario Lab covers all possible applications for metal analysis. The fields of application are not limited. Whether in the laboratory or workshop – there is no location that can not be considered.

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

Routine maintenance efforts could be reduced with the new design.

Exceptional Performance

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.

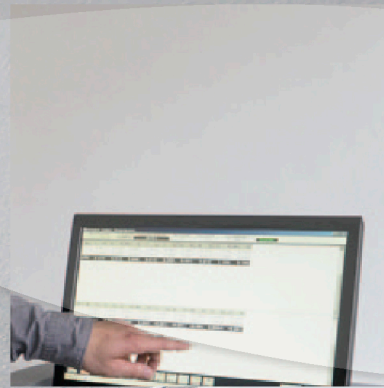
The second variation, the **Model 2C**, is equipped with the latest-state-of-art CCD detectors. Due to the flexible design it is recommended for any multi-base application.

- Multi-Base capable
- reduced analysis cycles
- small size and weight
- very flexible for all kinds of sample sizes and shapes
- integrated dynamic alloy database
- optional additional sparking probe

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The Laboratory Spectrometer for Metal Analysis



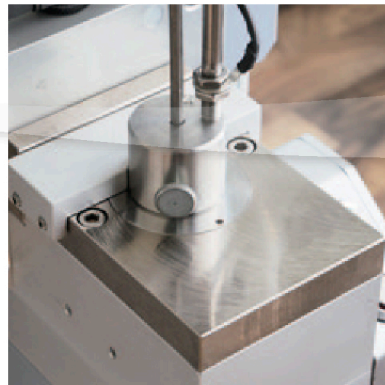
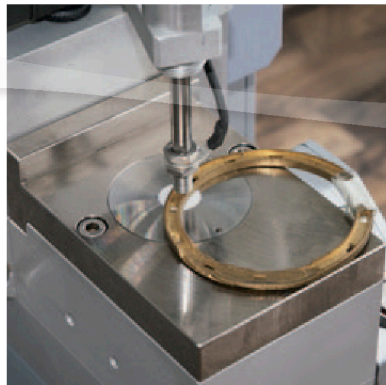
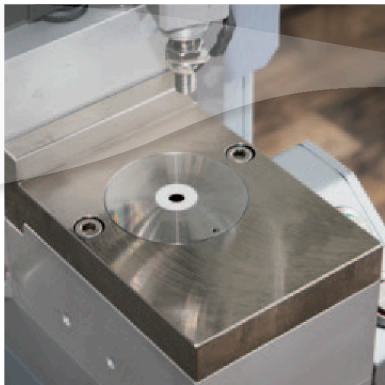


Easy Operation

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 database can be customized and extended without limitations.

The attractive design of the Belec Vario Lab ensures an ergonomic set-up of the spectrometer at a comfortable working height. The drawer has enough space to accommodate user tools, drift correction samples and other accessories.



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Belec Vario Lab

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The Laboratory Spectrometer for Metal Analysis

Optics

- spectrometer in Paschen-Runge mounting
- Rowland circle diameter 500 mm
- usable wavelengths 120-430 nm
- Zeiss-Grating with 3600 lines/mm
- reciprocal dispersion 0,52 nm/mm (1st order)
- shock resistance
- photomultiplier detector systems are ± 0.1 °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 max. 400 Hz frequency
- unipolar discharge
- separate parameters for pre-sparking and integration selectable via software
- ignition frequency program specifically selectable via software
- discharge power program specifically selectable via software
- ignition voltage 20 kV

Measuring Stand

- argon-flushed measuring stand for exact analysis
- sparking stand grounded with \varnothing 10 mm analysis opening, optionally with ceramic insert for samples of \varnothing 4 mm minimum
- 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 control on cable plug
- 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 3 m or 5 m
- low-wear tungsten electrode
- probe connector system

Dimensions and Weight

- width 26.8 in. (680 mm)
(additional 2.4 in. (60 mm) on optional probe plug)
- height 44.7 in. (1135 mm)
- depth 37.2 in. (945 mm)
- weight analysis unit 176.6 lbs. (80 kg)

Power Supply (with vacuum system)**

- 230V/50Hz or 110V/60Hz
- in stand-by mode 100 W 600 W**
- during analysis 600 W 1000 W**

Computer Hardware

- system-integrated industrial computer system
- Intel® Atom™ Prozessor D2550 (1,86 GHz)
- 4 GB Ram and 2,5" Intel® Solid State Drive 120 GB
- Onboard Intel® graphic 945 express with VGA output
- 18,5" widescreen colour monitor, other sizes available
- complete external keyboard with touch pad
- USB 2.0 ports
- RJ45 ethernet interface, 100 Mbit/sec
- serial port, parallel port*

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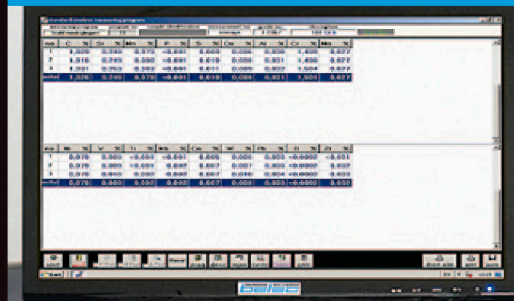
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Documentation Made Easy

Our software Belec WIN 21 convinces its users: easy to handle, always up-to-date and best operation conditions by clear arrangements. Measuring values and statistics are displayed at the touch of a button and can then be printed out or archived.

The analysis values can be easily filed in a local network via Ethernet connection.



Belec WIN 21 Analysis and Quality Control Program

Software

- arbitrary operating system, e.g. Windows 7
- Remote-Service-System (RSS)
- display of analysis values at each measurement
- as many analysis programs to customer specifications as required
- individual analysis parameters for each program
- Automatic Program Finding (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
- extended recalibration cycles by usage of MCDC (Multi Channel Drift Correction)
- mix-up checking by comparison with reference measurement
- grade test by comparison with grade ranges
- 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 grade name or material number
- alloy data bank, 100.000 grades 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
- automatic profile adjustment