



Belec Vario Lab

High-Performance Spectrometer for Metal Analysis

Specifications

- highest analysis accuracy
- maximum measuring value stability
- can be adjusted to almost any kind of problem
- low detection limits
- robust laboratory spectrometer
- flexibility through manifold equipment possibilities
- free accessible sparking stand for bigger samples
- installation and instruction by qualified personnel
- additional sparking probes



High-Precision and Flexible

The Belec Vario Lab belongs to the most powerful spectrometers of its kind. Due to a well-structured operating interface and Software Belec WIN 21 it is no problem to easily run the machine.

The fields of application are most different. Whether in the laboratory or workshop – there is almost no place that can't be considered.

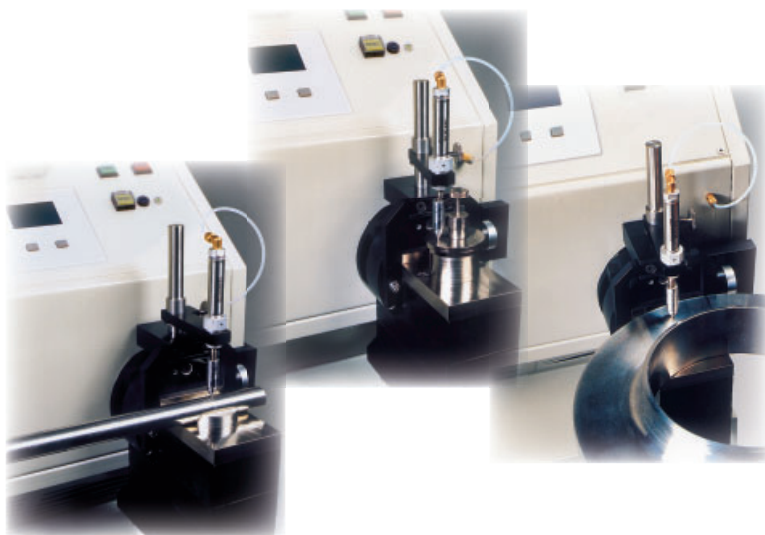
Universally Applicable

A sparking probe can expand the function of the instrument, additionally. For the analysis of big, bulky or indestructible samples, you can use one of our sparking probes. Like this, the Belec Vario Lab covers most fields of activity and can be a reliable companion for different applications.



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Adapters for Different Sample Shapes

Belec offers a wide range of adapters for nearly every sample shape and size. Without a special sample preparation, various pieces such as pipes, wires, metal splinters, screws and even small balls can be analysed.

Non-Destructive Testing

The sparking stand of the Belec Vario Lab is freely accessible from three sides which enables non-destructive material testing from even huge and bulky specimens.



Additional Sparking Stand keeps up Versatility

An additional sparking table is recommendable, if you analyse e.g. samples of different bases with a low melting point. An alternative sparking stand can keep the versatility of the instrument and offers additional assistance and saving of time to the operator.

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Belec Vario Lab – The All-rounder

- The instrument combines a number of unique features which make it a high-performance spectrometer for metal analysis.
- More flexibility by connection of a sparking probe or a second sparking stand in addition to the basic equipment.



Technical Data:

Optics

- spectrometer in Paschen-Runge mounting
- Rowland circle diameter 500mm
- usable wavelengths 120–430 nm
- grating 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 up to two spectrometer optics in the same instrument
- up to 11 bases and 108 measuring channels possible
- inert gas-breathed optical housing with gas purifier system
- optional optic with usable wavelengths up to 800 nm

Vacuum System (optional)

- pump integrated in lower cabinet
- large oil separator
- oil vapour 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 10mm analysis opening, optionally with ceramic insert for samples of \varnothing 4mm 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 effort

Probes

- argon-flushed sparking probe for exact analysis, including carbon
- argon flow 0,1 l/min in standby and 2,5 l/min when analysing
- argon control on cable socket
- 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

Electronics

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

Dimensions

- width 24.8 in. (630 mm)
- height 22.6 in. (575 mm)
- depth 27.6 in. (1220 mm)
- plus 4.5 in. (115 mm) for sparking stand

Weight

- analysis unit 220.0 lbs. (100 kg)
- argon probe 2.1 lbs. (0,95 kg)
- special probe 2.5 lbs. (1,15 kg)
- lower cabinet 145.5 lbs. (66 kg)

Power Supply

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

Computer Hardware

- system-integrated industrial computer system
- Intel® Celeron® M (1.50 GHz)
- 1 GB RAM
- 2.5" hard disk 60 GB minimum
- 15" internal TFT colour display
- special dust and moisture protected integrated keyboard (or external)
- USB 2.0 ports
- Ethernet interface

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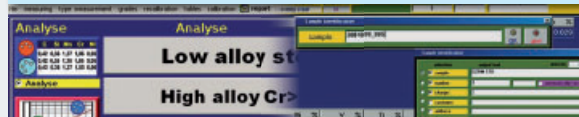
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Documentation Made Easy

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.

win 21



Belec WIN 21 Analysis and Quality Control Program

Software:

- arbitrary operating system, e.g. MS Windows XP
- 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