

belec compact port



The portable laboratory for metal analysis

With a weight of only 37.5 lbs. (17 kg) this extremely powerful spectrometer is the smallest of its kind. It is particularly easy to handle. The software can be operated by touch screen. For extensive data input, the integrated full size keyboard can be used to enter detailed sample descriptions or create additional material grades.

Data can be read off easily from 10.4" TFT display, which presents the highest contrast ratio and reading angle among flat screens.

Up-to-date **BELEC WIN 21** software is used to control the **BELEC COMPACT PORT** system. In

addition to the displayed analysis results, it also includes average calculation using a number of measurements, determination of the relative and absolute standard deviation and the evaluation of analysis results by comparison with entries in a material data bank. The new grade indication shows the material grade, which corresponds to the analysis result, automatically. Therefore, operation of the **BELEC COMPACT PORT** is considerably simplified and very user-friendly for less experienced operators.

belec

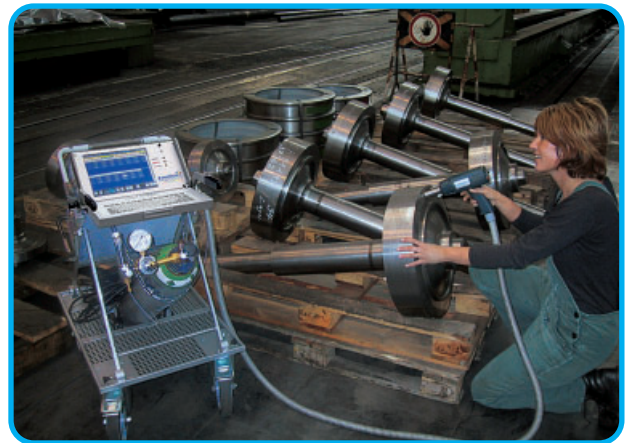
Introducing the mobile laboratory:



The **BELEC COMPACT PORT** spectrometer opens the door to a variety of applications. Whether it is used for measurements in production areas, on pipes in construction sites or in scrap yards - moving from one application to another is no problem for the spectrometer, which is enclosed in a heat-stabilised climatic chamber. Furthermore, there is only one person needed for transport and operation of the equipment.

The **BELEC COMPACT PORT** is equipped with the **BELEC PROBE CONNECTOR** where various sparking probes and the special measuring stand can be plugged in. The argon-flushed probes and the special measuring stand are used for laboratory-like analysis. Depending on the device configuration, metallic alloys and trace elements including C, P, S and B can be determined. Argon-flushing and control are entirely attached to the probe connector. They also remain, when the spectrometer is used with a different probe. A large number of measurements can be made quickly by using the air probe.

The spectrometer has been designed for maximum measuring accuracy. The **DOUBLE-SPECTROMETER** enables the use of the most ideal spectral lines. With 36 measuring channels available, this small instrument can be even configured for several bases (e.g. Fe, Ni, Al, Cu, Co, Ti). The spectrometer is equipped with conventional photoelectric cells. The large dynamic range of the detectors allows identification of even the smallest differences in concentration over a wide measurement span.



The curved secondary slits effect a clear separation of adjacent spectral lines, which are particularly required for accurate analysis results where high alloy concentrations are involved.



For application in various locations, a wide range of accessories is available to the user. The aluminium case for the spectrometer, probes and accessories provides safe storage and transport of the equipment.



belec compact port

belec compact port

A solution without compromise for any application

The **BELEC SPECIAL PROBE** allows the analysis of phosphorus and sulphur. The short wavelengths emitted by these elements can not be transmitted by a fibre optic light pipe, unlike carbon. Instead, a small spectrometer is built into the probe. Nevertheless, it keeps its easy handling due to low weight.



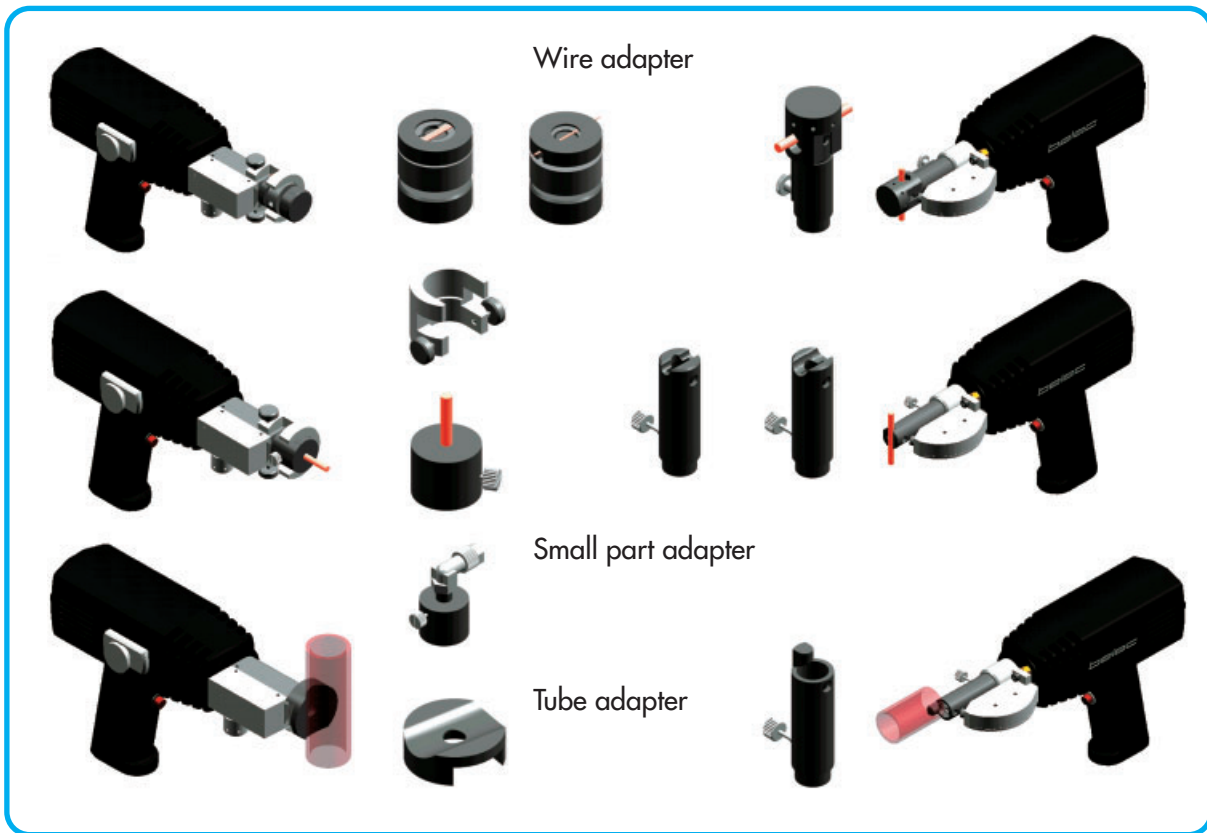
The use of the **ARGON-FLUSHED PROBE** underlines its high measuring accuracy. In addition to other elements, the carbon content can be exactly analysed. By using a special optical procedure, measurements lower than 0,1 %C can be attained with the same accuracy as those achieved by special carbon analysing systems. However, the preparation procedure for the sample is considerably less.

For mix-up checking, the **AIR PROBE** is connected to the equipment. Inspection cycles of less than 3 seconds can be achieved, after which an approximate analysis and grade identification is displayed. If a mix is found, a visual and/or audible fault signal is generated, and must be confirmed by the operator.



One of a kind: Connectable measuring stand for mobile spectrometer systems

If specimens can be brought to the spectrometer, the **SPECIAL MEASURING STAND** is recommended. Routine measurements can be performed quick and reliable without holding the probe, adapter or sample. The analysis of samples with small measurement surface from \varnothing 4 mm is practicable, as well as the use of various adapters for measurements of small or adverse shaped parts.

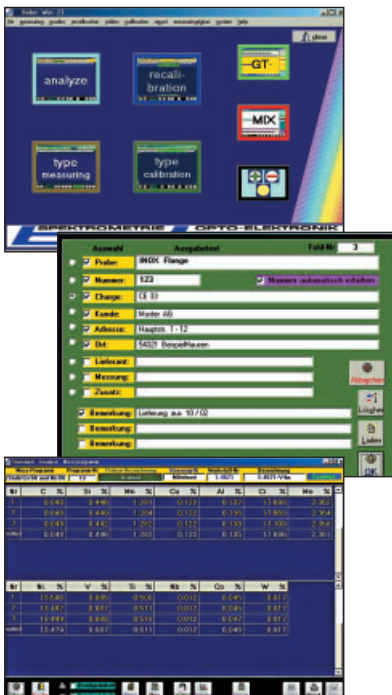


BELEC offers a wide range of **ADAPTERS**, which belong to the probes and measuring stand. Various shaped parts and test pieces, such as pipes, wires from 0.5 mm, metal splinters, screws and even small balls, can be analysed by these **ADAPTERS** without

a special procedure of sample preparation. Additionally, our **BELEC** application engineers are happy to provide solutions for your specific tasks.

belec win 21

The Spectrometer-Software with practice



Using the spectrometer you can ascertain day by day the excellent relation to practice of the **BELEC WIN 21** software. Routine jobs become noticeably easily. You can enter the sample descriptions, including all details. The documentation of the results is in accordance with the standards and at the same time, very simple. Measuring results and statistics can be graphed in a simple way.

Data transfer:

You can transfer data with USB connectors. Optionally, an Ethernet connection to your local net is available.

Remote Service System:

With this software **BELEC** is able to offer you a very fast service by connecting your system to our server. It can be accessed by our service engineers remotely to e.g. carry out updates, corrections or even demonstrations.

belec compact port

The universal solution BELEC PROBE CONNECTOR

This feature enables the use of various sparking probes and connectable sparking stands. Each device is specially designed for the appropriate use. The high-accuracy analysis equipment can be converted into a quick reference measuring instrument in no time. For each analysis assignment you have the most suitable equipment at your disposal.

The application range of the **BELEC COMPACT PORT** increases once more by the possibility to connect the special measuring stand. This capability to use a metal analyser,



mobile with probes and stationary with the special sparking stand, is unique.

One of a kind – Connectable measuring stand for mobile spectrometer systems



In the past, measuring stands for optical emission spectrometers were only used with stationary systems such as BELEC VARIO LAB. Today, this is also possible with the **CONNECTABLE MEASURING STAND** for **BELEC COMPACT PORT**.

The combined use of a sparking stand and a probe makes the **BELEC COMPACT PORT** ideal for, e.g. checking incoming goods.

Here, the spectrometer, equipped with a sparking stand, can be used as a stationary system. In order to analyse metals off site, e.g. on a lorry or in storage, the spectrometer regains its mobility by connecting a probe. Also engineering companies profit from this function when using the stationary function in laboratories or the mobile one on site.

Technical specifications:

Optics

- double spectrometer in Paschen-Runge mounting
- Rowland circle diameter 300 mm
- usable wavelengths 190-410 nm, 220-430 nm
- groove 3600 lines/mm
- reciprocal dispersion 0,9 nm/mm (1st order)
- shock resistance
- temperature stabilised photoelectric cells

Probes

- argon-flushed sparking probe for exact analysis, including carbon
- argon flow 0,1 l / min in stand-by 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

Source

- spark 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

Connectable measuring stand

- argon-flushed measuring stand for exact analysis
- argon flow 0,1 l/min in stand-by and 2,5 l/min when analysing
- connector system incl. argon control on cable socket, device-independent
- sparking stand grounded with \varnothing 10 mm analysis opening, optionally with ceramic insert for samples of 4 mm minimum
- adapters for wires, pipes and small parts available
- low-wear tungsten electrode - pneumatic sample clamping

Electronics

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

Dimensions

- width 14.2 in. (360 mm)
- height 7.9 in. (200 mm)
- depth 16.5 in. (420 mm)

Weight

- analysis unit 37.5 lbs. (17,00 kg)
- special probe 2.9 lbs. (1,30 kg)
- argon probe 2.1 lbs. (0,95 kg)
- air probe 1.8 lbs. (0,80 kg)
- measuring stand 20.0 lbs. (9,50 kg)

Power supply

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

Computer hardware

- system-integrated industrial computer system
- AT-compatible CPU card Celeron® processor 400 MHz with real time clock
- 512 MB RAM minimum
- 2.5" hard disk 20 GB minimum
- 10.4" TFT colour display
- touch screen
- special dust and moisture protected keyboard integrated in hinged lid
- USB ports
- Ethernet interface RJ45, optional

Software

- Belec WIN 21 analysis and quality control program
- arbitrary operating system, e.g. MS Windows XP
- Remote-Service-System, optional
- 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), optional
- 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

Subject to technical modifications

SPEKTROMETRIE OPTO-ELEKTRONIK
belec

Hamburger Str. 12

D-49124 Georgsmarienhütte

Tel. +49 (0) 54 01-87 09-0

Fax +49 (0) 54 01-87 09-28

e-mail: info@belec.de

Internet: www.belec.de