

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 the touch screen. For extensive data input, use the full size keyboard to input a detailed sample description or create additional material grades. Optionally a mouse can be connected.

Data are displayed by TFT display, which offers the highest contrast ratio and reading angle among flat screens. The size of the display with 10.4" guarantees the data can be read easily.

Reliable BELEC WIN 21 software is used to control the **BELEC COMPACT PORT**. In addition to the analysis results displayed, 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 automatically the material grade, which corresponds to the analysis result. Therefore, operation of the BELEC COMPACT PORT is considerably simplified, and very "user-friendly" for the less experienced operator.

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Introducing the mobile laboratory:



The new **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. Only one person is needed for transport and operation of the equipment.

The BELEC COMPACT PORT is equipped with the **BELEC PROBE CONNECTOR**. Various sparking probes and the special measuring stands can be plugged into this connector. The argon flushed probes and the special measuring stands 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 new **DOUBLE-SPECTROMETER** enables the utilisation of the most ideal spectral lines. With 36 measuring channels available, this small instrument can even be configured for several bases (e.g. Fe, Ni, Al, Cu, Co, Ti). The spectrometer is equipped with conventional photoelectric tubes. 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 neighbouring spectral lines, which is particularly required for accurate analysis results where high alloy concentrations are involved.



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



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For any application a solution without compromise

Our latest development is the **BELEC SPECIAL PROBE**, which allows the analysis of **phosphorus** and **sulphur**. The short wavelengths emitted by these elements can not be transmitted by a fibre optic light pipe, as opposed to carbon. Instead, a small spectrometer has been built into the probe. The probe is still easily manageable and because of its low weight, allows comfortable handling.



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 of below 0,1 %C can be reached with the same accuracy as those achieved by special carbon analysing systems. The preparation procedure for the sample is, however, a great deal shorter.

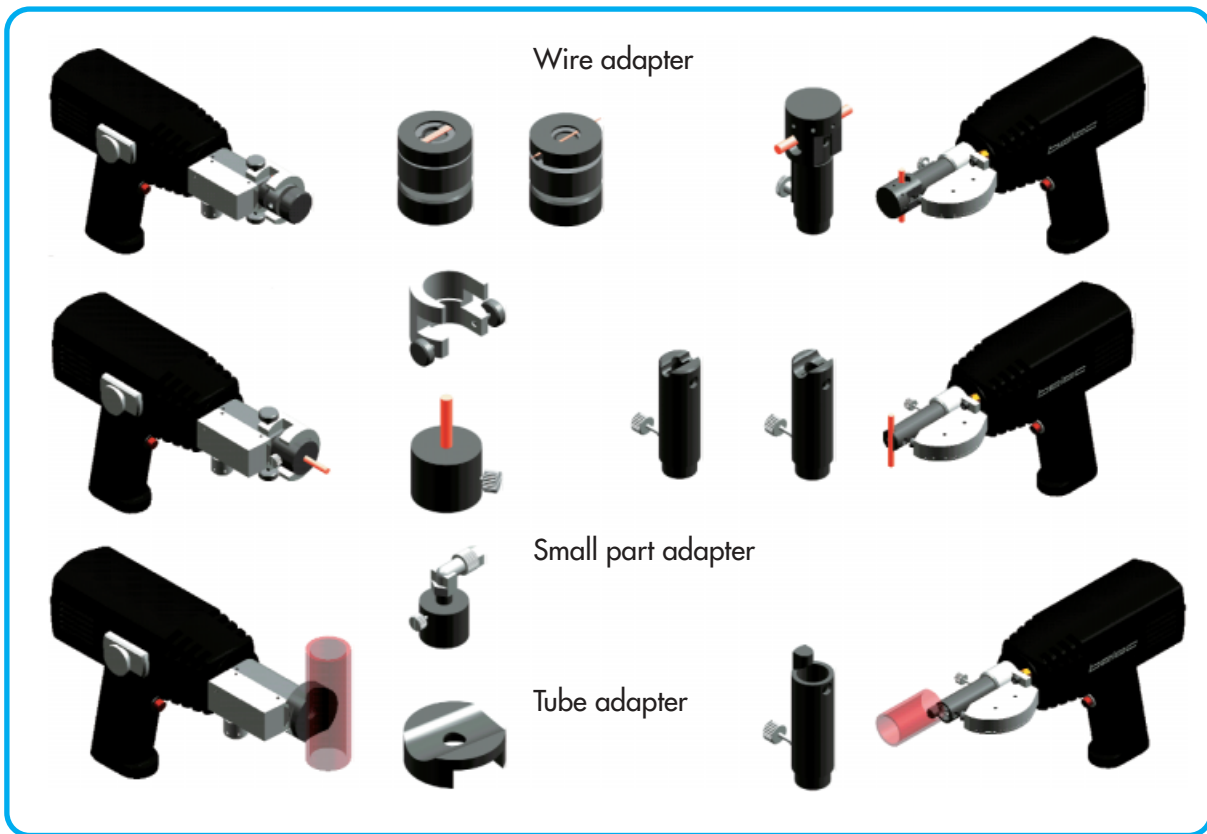
The most common use of the equipment is with the **AIR PROBE** in "MIX-UP" mode. Inspection cycles of less than 3 seconds can be achieved, after which an approximate analysis and grade identification is displayed. If a mix is found, a visual and/or audible fault signal is generated, which must be confirmed by the operator.



Version without P&S

World innovation: 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 having to hold the probe, adapter or sample. The analysis of samples with small measurement surfaces up to $\varnothing 4 \text{ mm}$ is practicable, as well as the usage of various adapters for measurement of small or adverse shaped parts.



BELEC has a wide range of **ADAPTERS** available, which connects to the probes and measuring stands. 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, BELEC application engineers will be 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 easier. You can enter the sample descriptions, including all details. The documentation of the results is in accordance to the standards and simple at the same time. Measuring results and statistics can be graphed in a simple way.

Data transfer: You can transfer data with a serial port, USB connector or by floppy disk to another computer. Optionally, an Ethernet connection to your local net is available.

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The universal solution using the BELEC PROBE CONNECTOR

This feature enables the use of various sparking probes and connectable sparking stands. Each device is designed specially for the appropriate use. Your high accuracy analysis equipment is 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 this robust portable spectrometer type increased 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.

World innovation: 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. One most recent development is a **CONNECTABLE MEASURING STAND** that can also be used with the Belec Compact Port.

The **combined use** of a sparking stand and a probe makes the Belec Compact Port ideal for, e.g. checking received goods. The

spectrometer, equipped with a sparking stand, can be used as a stationary system when goods enter the storage room. In order to analyse metals externally on a lorry or in the storage room, the spectrometer regains its mobility by connecting a probe. Engineering companies profit from this by analysing commissions within the laboratory and by its mobile use on site.

Technical specifications:

Optics

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

Probes

- Argon flushed sparking probe for exact analysis, including carbon
- Argon control on cable socket
- Air probe for quick mix-up checking
- adapters for wires, pipes and small parts 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 released by conform button
- multi fibre quartz optics, standard lengths 3m or 5m
- low-wear tungsten electrode
- silver electrode for air probe
- probe connector system

Connectable measuring stand

- Argon flushed for exact analysis
- Connector system incl. Argon control on cable socket
- spark stand grounded with Ø 10mm analysis opening, optionally with 4 mm insert disc made of ceramic
- adapters for wires, pipes and small parts are 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 with configuration possibility 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

- 220V/50Hz or 110V/60Hz
- 100W stand by
- 600W during analysis

Computer system hardware

- modular computer system in Euro-Card format
- At-compatible CPU card with real time clock
- 128 MB RAM minimum
- Hard disk 6.0 GB minimum
- 3.5" disk drive 1,44 MB
- 10.4" TFT display
- Touch screen
- full keyboard integrated in collapsible cover
- parallel port
- serial port RS 232
- USB port
- Ethernet interface, optional

Software

- Belec WIN 21 analysis and quality control program V 1.12P
- Operating system Windows 98 and MS-DOS

- 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, optional
- analysis computation with: background correction, curve position correction, additive and multiplicative interelement 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 and more qualities are storable (only limited by the computer storage capacity)
- text size on monitor variable for optimum legibility
- protocol storage function
- report memory function for later evaluation, printing and archiving
- several statistic functions with graphical representation

We reserve the right to alter our technical specifications

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