

## Belec Compact Port **HLC** (Hybrid **L**ow **C**arbon)

World's only Portable Hybrid-Spectrometer for  
Perfect Carbon Analysis in Combination with  
Maximum Flexibility and Latest **6GSO-System**

## NEW!

What has only been possible with huge laboratory spectrometers so far now becomes a reality with mobile spectrometers, too – the unique hybrid spectrometer Belec Compact Port HLC – developed by Belec engineers.

Flexibility combined with highest accuracy: High-quality, digital sensors (CCD) cover the whole spectral range and therefore offer a consequent line selection without compromise.

Analog detectors (photomultipliers) present an inimitable performance related to detection limits and

accuracy – especially for certain elements as carbon.

– “PMT meets CCD”

– Unique combination of accepted and latest technique for mobile metal analysis

– Make use of the whole customized OES power spectrum

### *The Smallest of its Kind*

High performance, easy handling and flexible application areas make the spectrometer **Belec Compact Port HLC** a reliable analysis instrument for quality assurance. Whether it is used for measurements in production areas, on pipes in construction sites or on scrap yards – moving from one application to another is no problem for the instrument with its temperature stabilized climatic spectrometer chamber.

– Sturdy trolley offers mobility and stability against collapse at the same time

– Trolley offers storage space for necessary accessories as e.g. grinding machine for sample preparation, printer, etc.

– convenient weight and size

– battery-supplied operation possible

## Secure, Fast and Precise

Within only a few seconds you can detect and analyze up to 70 elements in metals.

With accurate sample preparation there is hardly any analytic task that cannot be solved – no matter where or what sample shape is given.

- Analysis of Phosphor (P) und Sulfur (S) with Argon Probe UV\*
- Analysis of Nitrogen (N) in duplex steels
- Quick mix –up checking with Air Sparking Probe
- Analysis of wires, tubes or small parts of different sizes with our Belec adapters

## More Flexibility: The Belec Probe Connector

All three types of probes are easily interconvertible.

There is no need for time consuming probe head conversion when switching from arc-to-sparc.

- Ergonomic sparking probes
- Designed for daily, regular use
- Flexible optical fibre up to 8 m\* length



Argon Probe



UV Probe (N\*)



Air Probe

### Sparking Probe Features

	Argon Probe	UV Probe (N*)	Air Probe
argon-flushed sparking probe incl. C-analysis	●	●	–
argon-flushed sparking probe incl. P, S, N*-analysis	–	●	–
probe connector system	●	●	●
quick mix-up checking	–	–	●
multi fibre quartz optics, 3m to 8 m*	●	●	●
adapters for tubes, wires + small parts	●	●	●
non-destructive material testing	●	●	●

# Belec Compact Port HLC

Mobile Spectrometer for Metal Analysis



## Technical Data

### Optics

- double spectrometer in Paschen-Runge mounting using the latest 6GSO-System (6th Generation Spectrometer Optic System)
- Rowland circle diameter 300 mm
- usable wavelengths 190-410 nm
- Zeiss-Grating with 3600 lines/mm
- reciprocal dispersion 0,9 nm/mm (1st order)
- shock resistance
- high-speed photomultipliers for perfect carbon analysis and determination of h- and l-alloyed steels
- temperature stabilized detectors with wavelength depending configured entrance window (US-licensed)
- integrated noise compensation

## Belec Compact Port HLC

(Hybrid Low Carbon)

World's only Portable Hybrid-Spectrometer for Perfect Carbon Analysis in Combination with Maximum Flexibility and Latest **6GSO-System**.

### Sparking Probes

- argon-flushed sparking probes
- argon probe standard for exact analysis, including C
- argon probe UV for exact analysis including C, P, S and optional N
- argon control on probe plug, independent from instrument
- argon flow 0.1 l/min in stand-by and 2 l/min during analysis
- low-wear tungsten electrode
- air probe for quick mix-up checking (PMI)
- silver electrode for air probe, optional copper electrode
- lightweight and handy 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 to 8 m\*
- probe connector system
- adapters for different sample types as wires, tubes or small parts available for all probes
- customized adapters on demand

### 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 parameters specifically selectable via software
- arc source for air probe, optional
- ignition voltage 20 kV

### Electronics

- temperature stabilization, at 0.1 °C exact
- separate AD-converter board for each detector, mounted on multichannel board, coupled by high-speed USB port
- integrated noise suppression
- integrated background compensation
- unlimited numbers of measuring channels, configurable for several bases
- for PMT sector - stabilised HV, zero-stabilised analogue amplifier, 6-decade A-D converter per channel

### Dimensions

- width 16.5 in. (420 mm)
- height 7.9 in. (200 mm)
- depth 19.3 in. (490 mm)

### Weight

- analysis unit 37.5 lbs. (17,00 kg)
- UV probe 3.9 lbs. (1,75 kg)
- argon probe 2.9 lbs. (1,30 kg)
- air probe 1.8 lbs. (0,80 kg)

### Power Supply

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

### Computer Hardware

- system-integrated industrial computer system
- Intel® ATOM® single core N270 (1.6 GHz) processor
- 2 GB DDR2 SD RAM
- 2.5" Solid-State-Drive (SSD) 120 GB minimum
- Onboard Intel® graphic 945 express with VGA output
- 10.4" TFT colour display
- touch screen
- special dust and moisture protected keyboard integrated in hinged lid
- USB 2.0 ports
- RJ45 ethernet interface

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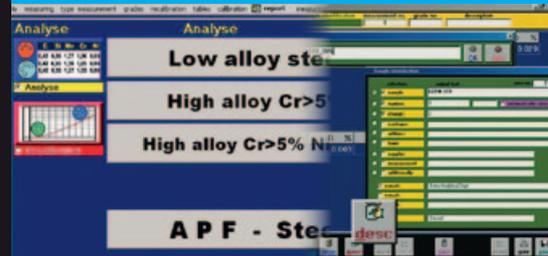
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## Documentation Made Easy

Our software Belec WIN 21 with individually adaptable user interface 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. MS 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 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 (BGR)
- 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 and 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
- automatic profiling system (depending on hardware)