Analysis console

The spectrometer

Spectral coverage	typ 230 – 850 nm in one acquisition with an Echelle type spectrometer or 180 – 900 nm with a monochromator*
Resolution Power (λ/Δλ)	4000 minimum
Detector type	ICCD
Temperature	The spectrometer is maintained at a temperature higher than the ambient temperature (32.5°C +/- 0.2°C in laboratories)

The laser Power supply

A control rack and software

A 19" rack integrating the dedicated PC and AnaLIBS software for:
- The LIBS experiment control: synchronization of all the components of the system
- The control of acquisition parameters: Number of shots, pre-shots, delay and acquisition gating
- Automatic and manual treatments: automatic recognition of the peaks i.e. the elements, different tools to do: calibration curves for quantitative measurements, semi-quantitative analysis, PCA module for the material recognition etc.

Depending on your environment, the transportability needed for the system and the spectrometer you wish to use, you can chose between three different consoles:

	LabEI Laboratory	**IndEI** Industrial	**IndCTI** Industrial
Shape	3 boxes of <20kg each	Ruggedized console in one piece with wheels and hooks	Ruggedized console in one piece with wheels and hooks
Dimension (HxLxP in mm)	755x545x780	1600x700x1100	2200x700x1100
Recommanded Operating temperature	18 – 22°C	Industrial Environment	Industrial Environment
Spectrometer compatibility	Echelle + ICCD	Echelle + ICCD	Czerny-Turner + ICCD

If you haven't found what you're looking for, please do not hesitate to contact us as we may be able to answer to your special requirements by offering you another product of our range or by developing your own solution.

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IVEA SOLUTION

The **MobiLIBS** is a turn-key, modular and transportable system for elemental analysis of materials in all forms: solids, liquids, gases, aerosols, powders, emulsions, viscous liquids, etc..
In a few seconds you get the qualitative and quantitative elemental chemical composition of your material, without preparation and with very good detection limits.
The various options offered by IVEA allow you to optimize protocols and results for your application with great flexibility.

Properties and Benefits :

- A turn-key LIBS analyser: An integrated LIBS system to obtain fast results
- Analysis of all types of materials without preparation: liquid, gas, solid, all shapes, all sizes, all properties
- Choice of excitation wavelength 266nm or 1064nm laser: optimization of laser-material coupling to yield optimum excitation
- Beam shaping and control of energy: The total control of the interaction laser-matter
- Choice of detection system: optimizing your LDD based on your needs, simultaneous detection of several elements of interest
- Thermalized spectrometer: optical stability for reproducible results
- AnaLIBS Software: a single interface for controlling the acquisition and data processing, user-driven

Applications :

Elemental analysis of all types of materials: Glass, Metals, Polymers, Ceramics, Refractories, Thin Films, Rocks, Treatment Baths, Oils, Biological Matrices, Aerosols, Nanoparticles, Plants, Soils, Powders, Gas, Nuclear Materials, Waste, Petroleum Products...

MobiLIBS

Elemental analysis in real-time of all materials in-situ or in laboratories

Analysis options

The **MobiLIBS SA** (Stand Alone):
For the analysis of large objects which won't fit into an analysis chamber or to analyse through a window some material contained in a chamber under
controlled atmosphere or for the analysis of molten materials, for example.
It allows analysis at distances of 10cm (crater of 50µm) to 1m (crater of 100µm).

Technical specifications:

Optical head integrating:

Laser

Laser type	Pulsed Nd:YAG
Wavelength	266 nm for solids and liquids and 1064nm for gas
Frequency	20Hz
Pulse duration	~4ns
Energy delivered on the sample	from few µJ to few tens of mJ depending on the laser wavelength

The optical beam shaping and the attenuator

Energy Stability	+ / - 5% RMS (about 100 shots within the normal range of use of the laser, energy measured for each shot)

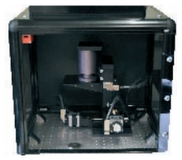
The optical collection of light emitted by the plasma

Achromatic	Collection optimal from UV to NIR

Analysis parameters

Analysis crater diameter	From 50µm to 300µm depending on the options
Limits of detection	From few hundreds of ppb to few thousands of ppm depending on the elements and configurations
Measurement dynamic	From few hundreds of ppb to 100%
Analysis atmosphere	Ambient air or controlled atmosphere
Analysis time	50ms to few seconds depending on configuration

SolidLIBS



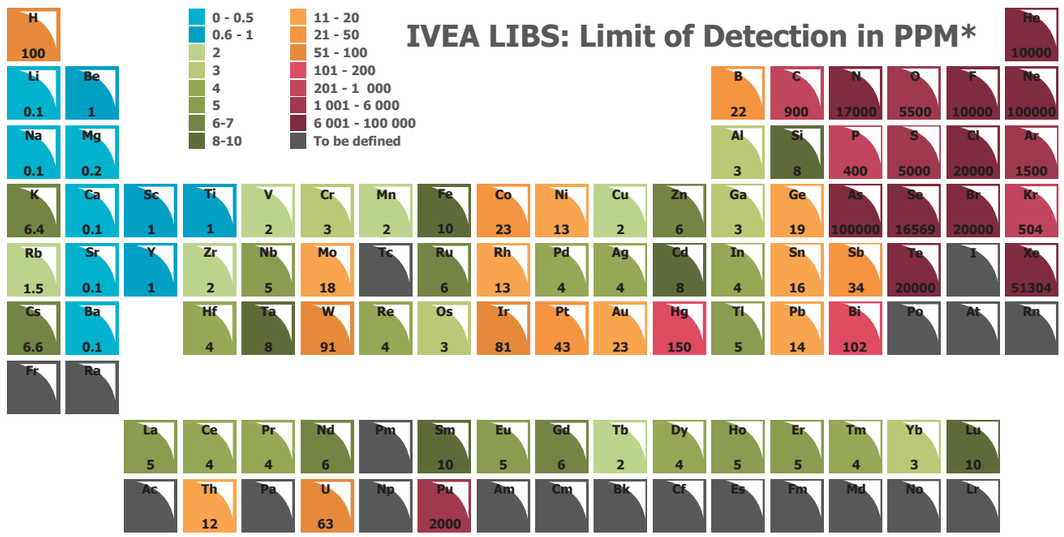
The **SolidLIBS** is an analysis chamber for solids or static liquids, it does include:
- a chamber whose walls are blocking the laser beam to work in laser safety (possibility to work in a controlled atmosphere)
- a motorized XYZ for focusing and scanning the sample in a programmable sequence
The craters of analysis are typically 50µm

LiquidLIBS

The **LiquidLIBS** is designed to analyse liquids as a jet, flow or droplets. For jets, it is equipped of:
- a chamber whose walls are blocking the laser beam to work safely
- a peristaltic pump to continuously circulate the liquid
- a gas supply to clad the jet, to work in a controlled atmosphere to prevent flying particles

AirLIBS

The **AirLIBS** is an aerosol and gas analyser developed on the basis of MobiLIBS.
It integrates all the modules of the device (beam shaper, energy control, calibration lamp). The major adjustment is the wavelength change at 1064 nm. The Airlibs includes:
- An aerosol's analysis cell: This cell enables you to control the flux rate and to work in laser safety
- A gas arrival to inject it into the analysis cell
- A discharge of the aerosol analysis, incorporating a total filter to filter the rejection



*Minimum values reached with IVEA's analysers optimized for the considered element.