<table>
<thead>
<tr>
<th>DEMON</th>
<th>DEMON-NIR</th>
<th>Super DEMON</th>
</tr>
</thead>
<tbody>
<tr>
<td>echelle spectrometer with pre-monochromator and active wavelength stabilization in Littrow-configuration</td>
<td>6/10 adjustable</td>
<td>6/10 adjustable</td>
</tr>
<tr>
<td>190 - 900 nm (175-1,100 nm on request)</td>
<td>600 - 1,760 nm</td>
<td>200 - 750 nm, no gaps</td>
</tr>
<tr>
<td>75,000 (51000 possible)</td>
<td>60,000</td>
<td>&lt; 200,000 (more on request)</td>
</tr>
<tr>
<td>2.5-12 pm</td>
<td>10 - 28 pm</td>
<td>1 - 3.75 pm</td>
</tr>
<tr>
<td>(other resolution possible)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spectral resolution / 4</td>
<td>Pixel (Dispersion x 10 pixel)</td>
<td>spectral resolution / 4</td>
</tr>
<tr>
<td>1-5nm (depending on wavelength)</td>
<td>4.5 - 13.5 nm</td>
<td>0.25 - 1 nm</td>
</tr>
<tr>
<td>J / 255,000</td>
<td>better J / 90,000</td>
<td>J / 600,000</td>
</tr>
<tr>
<td>CCD or ICCD</td>
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<td>CCD or ICCD</td>
</tr>
<tr>
<td>1 ms with CCD: 5 ns with ICCD</td>
<td>1 ms</td>
<td>1 ms with CCD: 5 ns with ICCD</td>
</tr>
<tr>
<td>16 bit</td>
<td>16 bit</td>
<td>16 bit</td>
</tr>
<tr>
<td>Fiber optional mirror optics</td>
<td>Fiber optional mirror optics</td>
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</tr>
<tr>
<td>with calibration lamps</td>
<td>with calibration lamps</td>
<td>with calibration lamps</td>
</tr>
<tr>
<td>automatic control of the motors and the calibration lamps via PC</td>
<td>automatic control of the motors and the calibration lamps via PC</td>
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</tr>
<tr>
<td>and the LabVIEW library optional</td>
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</tr>
<tr>
<td>600 x 310 x 230 mm</td>
<td>600 x 310 x 230 mm</td>
<td>1,275 x 512 x 300 mm</td>
</tr>
<tr>
<td>25 kg integrated mechanical shutter and motorized slit</td>
<td>25 kg</td>
<td>75 kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>75 kg</td>
</tr>
</tbody>
</table>

Optical design:
- Aperture
- Slit width
- Wavelength range
- Spectral resolving power
- J/min measurable FWHM
- Spectral resolution

Absolute accuracy:
- Simultaneous inspection range
- Linear dispersion
- Detector
- Exposure time, min
- Dynamic range
- Light coupling
- Wavelength calibration
- Control

Software:
- Dimensions without detector (L x W x H)
- Weight without detector
- Features

subject to technical changes

LTB Lasertechnik Berlin GmbH
established in 1990, is an innovative developer and manufacturer of short-pulse lasers in the whole optical spectral range, different spectrometers and laser-based measuring techniques, marketing its products worldwide.

We provide you:

- Laser sources for the industrial analytics and medical diagnostics
- Highest-resolution spectrometers for the development and production of lasers, esp. diode lasers and laser diodes, and for the laser lithography
- Laser-based measuring techniques for the spectroscopic material analysis, process analytics and medical diagnostics (UF, LBS and Raman)

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www.ltb-berlin.de

Light. Precision. Analytics.

High-Resolution
60,000 - 200,000

Wavelength range
190nm - 1,700nm

DEMON-Series
Double-Echelle-MONochromator
for laboratory and industrial applications
DEMON
Double Echelle MONochromator

Optical Setup

The DEMON is a spectral high-resolution Double Echelle MONochromator. It consists of an optomechanically motorized and thermally robust echelle spectrometer in sequence with a prism monochromator that is used for the selection of the inspection range. The patented optical design of prism and echelle grating is arranged in Littrow configuration and benefits from the high-image quality of the applied parabolic mirror optics. The width of the prism monochromator exit slit, which serves also as entrance slit of the echelle spectrometer, is adjustable. An active wavelength stabilization is provided by using the internal calibration lamp for highest absolute wavelength accuracy without the necessity of extensive temperature stabilization.

By applying reflection optics with broadband UV layer and a CaF2 prism, chromatic aberrations are avoided and thus a large wavelength range from the UV to the NIR is provided. The light coupling into the DEMON spectrometer is realized via SMA fiber or reflection transfer optics. Various CCD and ICCD cameras are suitable for the designed detection area.

Software

The supplied operating software Sophi with optional LabVIEW library for complete remote control of the DEMON allows fully access of all spectrometer-detector functions via graphic user interface and provides automated measurement routines with an integrated scripting language. All measured spectra are automatically plotted for comprehensive analysis that can easily be performed with Sophi.

Applications

- Isotopic shift investigation
- LBS - laser-induced breakdown spectroscopy
- Quality control of diode and solid-state lasers
- ICP-OES
- MP-OES

* The spectrometers systems are a result of the close co-operation between the IAS and LTB. They were developed (patented) by the IAS - Institute for Analytica i. Sciences, Department Berlin, and engineered for commercial use by LTB Laserotechnik Berlin GmbH.

The high resolution of the Demon series makes isotopic shift investigations of elements like Uranium, Plutonium or Lithium possible. Using laser-induced breakdown spectroscopy (LIBS), these isotopic shifts are measured within a second and without sample preparation. Only optical access to the sample is required.

The DEMON is also an excellent measuring instrument in the development, production control and quality testing of diode lasers used e.g. in Photolithography and Telecommunication technology. In contrast to interferometric setups, it allows the user to simultaneously monitor spectral bandwidth, intensity profile and absolute wavelength.

The simultaneous wavelength detection can be utilized for monitoring different "side modes" and energy distributions. The robust optical design is perfectly suited for long-term wavelength stability tests.