Thoracic Surgery and Pulmonology

Minimally invasive laser surgery for lung metastases and bronchial tumors

- Precision
- Minimal loss of parenchyma
- Coagulation and sealing
Laser technology for thoracic surgery and pulmonology

The use of laser technology in thoracic surgery has proven to be clinically effective and beneficial for the patient. During the last decades, laser development with modern semiconductor technology has demonstrated excellent performance with wavelengths in the range of 1318–1350 nm. This laser wavelength has proven ideal for parenchymal tissue (lungs and kidney).

biono® has followed its tradition of developing new minimally invasive treatment methods to join the proven results of the 1350 nm laser. By combining the dual wavelength mixture of 980 nm and 1470 nm, a new clinical approach with superb intra-operative efficiency and excellent post-operative outcome has resulted. The dual wavelength diode laser system is characterized by high economic efficiency and reliability with high quality fiber optic fibers to provide secure and cost-efficient care for patients by the medical specialists.
Highly developed diode laser technology from biolitec®

Why?

LEONARDO® DUAL wavelength diode lasers offer a combination of advantages. The 980 nm wavelength provides equal light absorption in both hemoglobin and water which offers an excellent coagulation effect. The 1470 nm wavelength is highly absorbed in water to generate an excellent cutting and vaporization.

The LEONARDO® DUAL 100-watt laser allows the clinician to direct a laser beam with mixed wavelengths onto or into lung tissue that has very high water content and low density. Users are able to observe that the laser achieves high ablation rates in the lung and tumor tissue with a simultaneously low and elastic coagulation zone to minimize post-operative side effects.

The diode laser device with proven long-term wavelengths 1350 nm for the minimally invasive laser surgery in the thorax region is alternatively available.

**Advantages**
- Simultaneous cutting and coagulation
- Sealing properties for a smooth tissue surface
- Parenchyma and lung lobe preservation
- Deep and centrally positioned metastases can be uncovered
- Follow-up treatment possible in recurring metastases
- Precise resection of multiple metastases in only one procedure
- Best hemostasis
- Post-operative drains can be removed shortly after the treatment

DUAL wavelength 980 + 1470 nm – new approach and progress in thoracic surgery
Applications

Examples of open surgery and laser-supported VATS / Uniportal VATS (video assisted thoracoscopic surgery)

- Metastasectomy
- Vaporization of tumors
- Wedge excision of lung tissue
- Resection of multiple and deep lung metastases
- Recurring metastases and tumors
- Hemostasis and fistula sealing
- Adhesiolysis
- Tissue resection for histological examination

Pulmonology

- Coagulation and ablation of endobronchial tumors and stenosis
- Removal of bronchial obstruction and fistulas
- Separation of tracheal stenoses
  (treatments can be performed with rigid or flexible endoscopes)

biolitec® Laser Systems

Advantages

- Multi-disciplinary use for numerous surgical applications
- Simple set-up (no additional external cooling or high voltage necessary)
- Reliable diode technology
- Low maintenance costs
- User-friendly
biolitec® Laser Systems

Model | LEONARDO® DUAL 100 | LEONARDO® DUAL 45 | Ceralas® HPD
--- | --- | --- | ---
REF | SL980+1470nm100W | SL980+1470nm45W | SH1350nm60W400u
Wavelength | 980 nm and 1470 nm | 980 nm and 1470 nm | 1350 nm
Performance | max. 100 Watt (1470 nm / 15 Watt + 980 nm / 85 Watt), individually adaptable | max. 45 Watt (1470 nm / 15 Watt + 980 nm / 30 Watt), individually adaptable | 60 Watt
Fiber diameter | ≥ 360 μm | ≥ 360 μm | ≥ 400 μm
Laser class | 4 | 4 | 4
Target beam | 532 nm and 635 nm, green 1 mW, red 4 mW, user-defined intensity | 532 nm and 635 nm, green 1 mW, red 4 mW, user-defined intensity | 635 nm +/- 30 nm; PWM 4 mW (max.)
Treatment mode | CW, Pulse Mode, ELVeS® Signal, ELVeS® Segment, Derma Mode | CW, Pulse Mode, ELVeS® Signal, ELVeS® Segment, Derma Mode | CW, Pulse Mode
Impulse length/ pause | 0.01 ‒ 60 sec / 0.01 ‒ 60 sec | 0.01 ‒ 60 sec / 0.01 ‒ 60 sec | variabel 0.01 ‒ 99.9 sec or continuously
Energy supply | 110 ‒ 240 VAC, 50 / 60 Hz, 600 VA | 110 ‒ 240 VAC, 50 / 60 Hz, 450 VA | 100 ‒ 240 VAC, 50 / 60 Hz, 400 VA
Cooling | Air cooled System | Air cooled System | Air cooled System
Measurements (H × W × D) | approx. 28 cm × 37 cm × 9 cm | approx. 28 cm × 37 cm × 9 cm | approx. 30 cm × 60 cm × 30 cm
Weight | approx. 8.5 kg | approx. 8.5 kg | approx. 30 kg

Fibers

Bare Fibers Flat Tip

<table>
<thead>
<tr>
<th>REF</th>
<th>Product</th>
<th>Length [m]</th>
<th>Core ø [μm] / [Fr]</th>
<th>AD ø [μm] / [Fr]</th>
</tr>
</thead>
<tbody>
<tr>
<td>503200745</td>
<td>Bare Fiber 600 μm, Flat Tip, Adj. Luer, ID (1 × 6 h)</td>
<td>3</td>
<td>565 / 1.7</td>
<td>860 / 2.6</td>
</tr>
<tr>
<td>503300415</td>
<td>Bare Fiber 1000 μm, Flat Tip, Adj. Luer, ID (1 × 6 h)</td>
<td>2.6</td>
<td>945 / 2.9</td>
<td>1400 / 4</td>
</tr>
</tbody>
</table>

Gas Liquid Cooled Fibers

<table>
<thead>
<tr>
<th>REF</th>
<th>Product</th>
<th>Length [m]</th>
<th>Core ø [μm] / [Fr]</th>
<th>AD ø [μm] / [Fr]</th>
</tr>
</thead>
<tbody>
<tr>
<td>503200525</td>
<td>GLC 180 Gas-, Liquid Cooled fiber, ID (1 × 6 h)</td>
<td>3</td>
<td>565 / 1.7</td>
<td>1800 / 5.4</td>
</tr>
</tbody>
</table>

Handpieces and Instruments

<table>
<thead>
<tr>
<th>REF</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>501200985</td>
<td>Laser Focus Handpiece</td>
</tr>
<tr>
<td>500400370</td>
<td>Instrument for Thoracoscopy, with smoke suction adapter, for 600 – 1000 μm fibers</td>
</tr>
<tr>
<td>400100100</td>
<td>Universal Dual Luer Handpiece, for 600 – 1000 μm fibers</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>REF</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP0003</td>
<td>Kartwagen Leonardo Laser</td>
</tr>
<tr>
<td>LA1371</td>
<td>Laser safety goggles DIR 804 – 1755 L3 (FULL), type: basket, clear</td>
</tr>
<tr>
<td>LA5165</td>
<td>Sticker Laser warning 20 × 20 cm</td>
</tr>
<tr>
<td>400100115</td>
<td>Medi Strip 0.7 / 1.2 BF 600 μm, autoclavable – Fiber stripper for BF 600 μm</td>
</tr>
<tr>
<td>400100120</td>
<td>Medi Strip 1.0 / 1.5 BF 1000 μm, autoclavable – Fiber stripper for BF 1000 μm</td>
</tr>
<tr>
<td>AB1908</td>
<td>Touhy Borst Adapter</td>
</tr>
<tr>
<td>AB2594</td>
<td>Biopsy needle 14 G, 6 cm with cm markings, sterile</td>
</tr>
</tbody>
</table>

Flue Gas Exhaustion

<table>
<thead>
<tr>
<th>REF</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP0025</td>
<td>Smoke evacuation FUMOVAC 700 Complete unit 220/240 V 50/60 Hz / HMS7525420</td>
</tr>
<tr>
<td>MP0026</td>
<td>Smoke evacuation filter for FUMOVAC 700 twin pack</td>
</tr>
<tr>
<td>MP0027</td>
<td>Tube set single use / holding device HP: 3m length, sterile / REF 57525332 / Packaging unit 10 pcs</td>
</tr>
<tr>
<td>MP0028</td>
<td>Laparoscopic Smoke Evacuation Tube, 3m length, sterile, REF 57525424 / PU.12 pcs</td>
</tr>
<tr>
<td>MP0019</td>
<td>ATMOS Air hose, ø 22 mm, L = 2.10 m, single use</td>
</tr>
<tr>
<td>MP0020</td>
<td>ATMOS Air hose, ø 22 mm, L = 2.10 m, reusable</td>
</tr>
<tr>
<td>MP0021</td>
<td>ATMOS Hose connector straight ø 22 mm to ø 10 mm</td>
</tr>
</tbody>
</table>
Venous diseases
Hemorrhoids and fistulas
Wide spectrum of ENT diseases
BPH and urological tumors
Uterine tumors
Cervical and lumbar disc herniation
Lung metastases and bronchial tumors

Contact us
to learn more about a whole new world of minimally invasive laser therapies

biolitec® worldwide

biolitec AG
Vienna, Austria
phone: +43 1 3619 909 50
info@biolitec.de
www.biolitec.com

biolitec Schweiz GmbH
Wollerau, Switzerland
Phone: +41 55 555 30 20

biolitec biomedical technology GmbH
Jena, Germany
Phone: +49 3641 519 53 0

biolitec biomedica SRL
Milano, Italy
Phone: +39 02 8423 0633

biolitec T. C. S. V. P. Ltd.
Istanbul, Turkey
Phone: +90 216 574 7456

OOO biolitec Spb
Saint-Petersburg, Russia
Phone: +7 812 4493752

biolitec FZ LLC
Dubai, UAE
Phone: +971 44 29 85 92

biolitec laser science and technology Shanghai Ltd.
Shanghai, China
Phone: +86 21 6308 8856

biolitec Sdn. Bhd.
Selangor, Malaysia
Phone: +60 3 5569 7158

biolitec India Private Ltd.
Bangalore, India
Phone: +91 265 3201106

PT. Biolitec
Tangerang, Indonesia
Phone: +62 21 537 2994

biolitec Korea Ltd.
Seoul, Republic of Korea
Phone: +82 2 701 4707

Equipos Laser de Uso Medico y Fibra Optica SA de CV
Mexico City, Mexico
Phone: +52 155 55 731800

biolitec BCIE LTDA
São Paulo, Brazil
Phone: +55 11 2093 8602

CeramOptec GmbH
Bonn, Germany
Phone: +49 228 979670

CeramOptec SIA
Riga, Latvia
Phone: +371 653 25 994

Imprint
biolitec AG
Untere Viaduktgasse 6/9
A-1030 Wien
Phone: +43 1 3619 909 50
www.biolitec.com

All fibers are free of latex and DEHP. Our fibers are single use products (unless otherwise indicated) delivered sterile for immediate use.

© biolitec® Thoracic Surgery Physician Brochure EN, 411700000, Rev. A, 2/10/2019