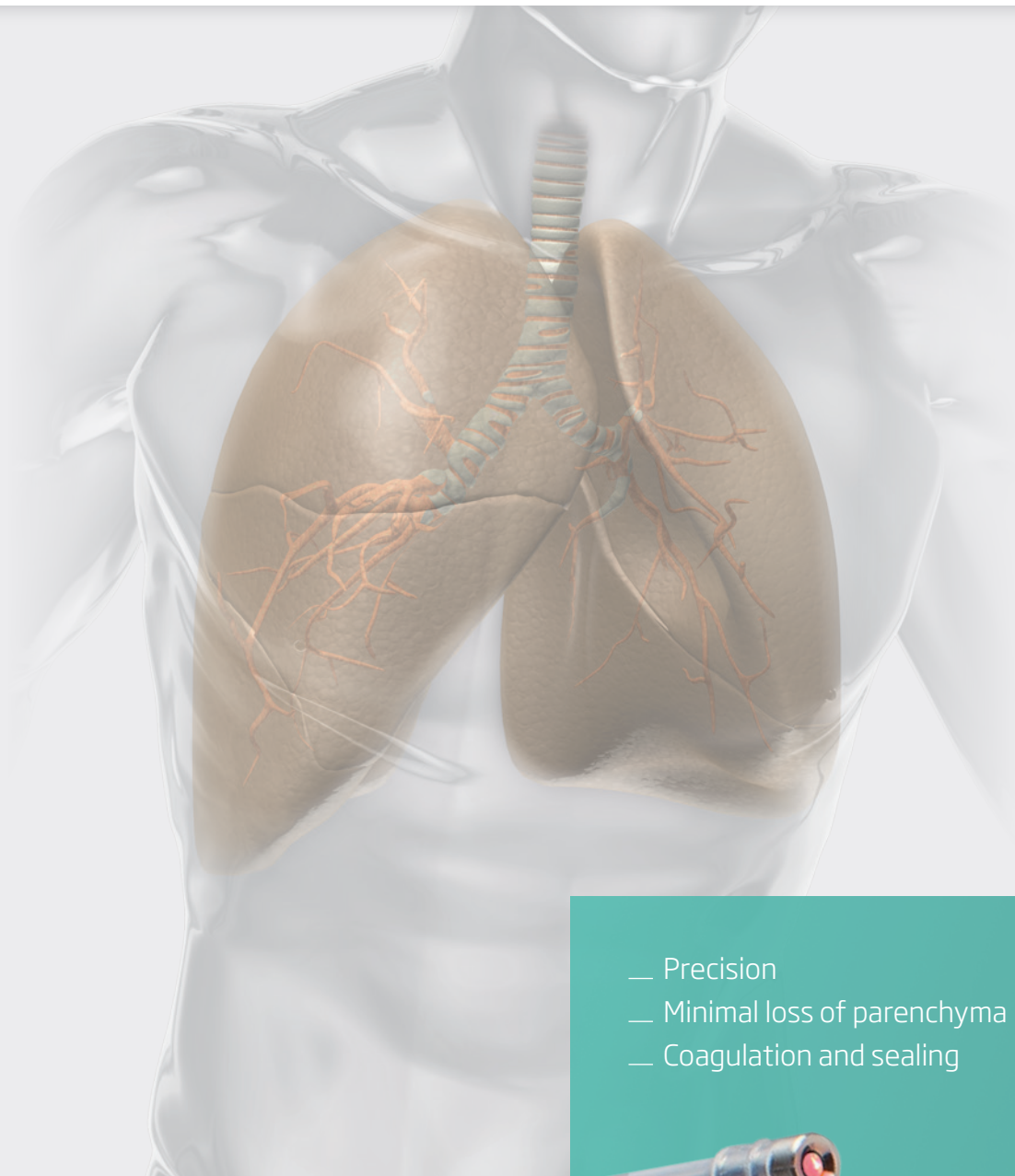
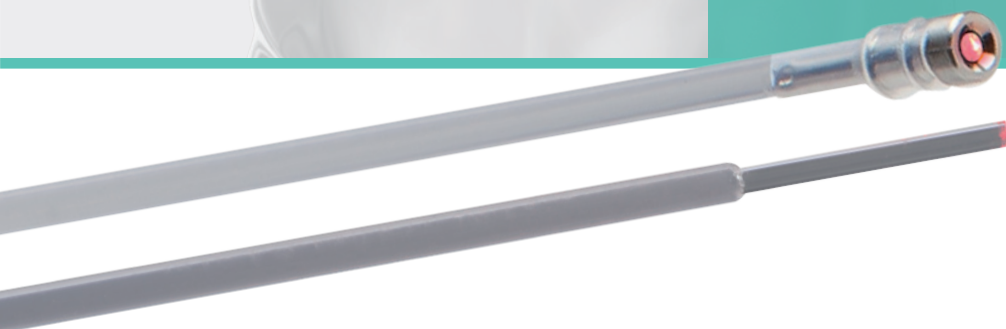


Thoracic Surgery and Pneumology

Minimally invasive surgery of
lung metastases and bronchial tumors

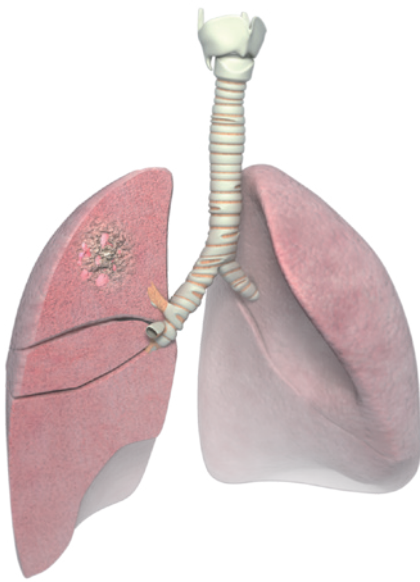


- Precision
- Minimal loss of parenchyma
- Coagulation and sealing

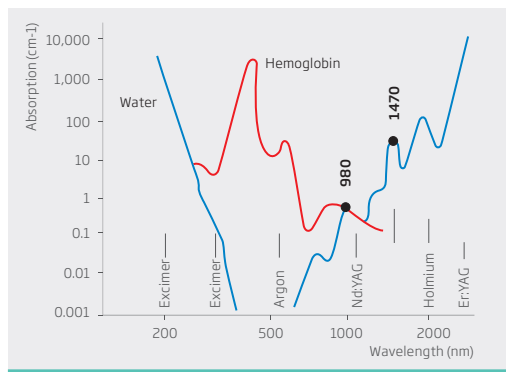


Laser technology in Thoracic Surgery and Pneumology

The use of laser technology in Thoracic Surgery has proved to be clinically effective and beneficial for the patient. In last decades, new developments in laser technology, using state-of-the-art semiconductor diode lasers, delivered high power systems wavelengths in range of 1318 - 1350 nm which has proved to be ideal for parenchymal tissues (lung, kidney). Following its tradition to pioneer new minimally invasive treatments, biolitec® has combined state of art wavelengths mix of 980/1470 nm showing excellent and efficient intra and post operative treatment results. Such diode laser systems are showing high cost effectiveness and reliability with high quality fiber optics and instruments to make procedures safer and more cost effective for health care professionals with an excellent standard of care for the patients.



Advanced diode laser technology by biolitec®



DUAL wavelength
980 + 1470 nm
- new approach and
progress in Thoracic
Surgery

Why?

LEONARDO® DUAL diode machines deliver the combination of advantages of wavelength 980 nm with comparable light absorption in hemoglobin and water which leads in excellent coagulation effect **and** the 40 times higher absorption in water of wavelength 1470 nm that leads to an excellent cutting and vaporization effect, because laser light will be absorbed from lung tissue after a few micrometers.

LEONARDO® DUAL 100 machine gives our users the option to transfer mixed wavelength laser beam to lung tissue, which fulfill the needs of our wavelengths: very high water content and low density. Users could observe that laser renders high ablation rates in lung and tumor tissues while keeping a low and elastic coagulation zone to extremely minimize post operative side effects like an unacceptable leak rate.

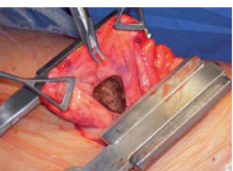
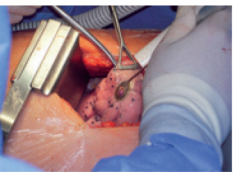
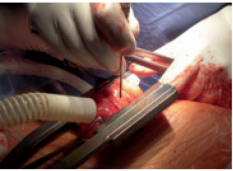
Alternatively available from biolitec® remains diode laser machine with proved, reported and long term tried and tested wavelength 1350 nm for minimal invasive laser surgery in thoracic field.

Benefits

- Cut and coagulate simultaneously
- Sealing properties provide smooth tissue surface
- Parenchyma-saving and lobe-sparing precise resection
- Deep and centrally located metastases can be exposed
- Re-treatment is possible with recurring metastases
- Precise resection of multiple metastases in only one procedure
- Best hemostasis
- Post-operative drainage can be removed shortly after treatment

Applications

Examples for open surgery and laser assisted vats (video assisted thoracoscopic surgery)



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

Pneumology

- Coagulation and ablation of endobronchial tumors and stenoses
- Remove of bronchial obstructions and fistulas
- Separation of tracheal stenoses
- (all treatments are done with rigid or flexible endoscopes)

biolitec® laser systems

Advantages

- Multidisciplinary use for a variety of surgical applications
- Easy to set-up (no additional external cooling or high voltage requirements)
- Reliable diode technology
- Low maintenance cost
- User-friendly

LEONARDO® DUAL 45/100



Model	LEONARDO® DUAL 100	LEONARDO® DUAL 45	Ceralas® HPD
REF	SL980+1470nm100W	SL980+1470nm45W	LH1350nm60W400u
Wavelength	980nm and 1470nm	980nm and 1470nm	1350nm
Power max.	max. 100 Watt (1470nm / 15 Watt + 980nm /85 Watt), separately adjustable	max. 45 Watt (1470nm / 15 Watt + 980nm /30 Watt), separately adjustable	60 Watt
Fiber diameter	≥ 360 µm	≥ 360 µm	≥ 400 µm
Laser class	4	4	4
Aiming beam	532nm und 635nm, green 1 mW, red 4 mW, user controlled intensity	532nm und 635nm, green 1 mW, red 4 mW, user controlled intensity	635nm +/- 30nm; 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
Pulse duration/-break	0.01 - CW/ 0.01 - 60 sec	0.01 - 60 sec/ 0.01 - 60 sec	variable 0.01 – 99.9 sec or continuous
Power 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
Dimensions (H x W x D)	approx. 27.50 cm x 37 cm x 8.5 cm	approx. 28 cm x 37 cm x 9 cm	approx. 30 cm x 60 cm x 30 cm
Weight	approx. 8.5 kg	approx. 8.5 kg	approx. 30 kg



biolitec® laser systems

CERALAS® HPD
combined with smoke
evacuation system



LEONARDO® DUAL 100 and Ceralas® HPD

REF	Product
SL980+1470nm100W	Laser Set LEONARDO® DUAL 100
SL980+1470nm45W	Laser Set LEONARDO® DUAL 45
SH1350nm60W400u	Laser Set Ceralas® HPD 1350nm 60W

All laser sets incl. 3 safety goggles, foot switch, interlock connector, power cord and manual in a carrying case. 1350 nm for Thoracic Surgery / Pneumology / General Surgery

Fibers

Bare Fibers Flat Tip

REF	Product	Length [m]	Core ø [µm] / [Fr]	OD ø [µm] / [Fr]
501200745	Bare Fiber 600 µm, Flat Tip, Adj. Luer, ID (1 × 6 h)	3	565 / 1.7	860 / 2.6
503200745	Bare Fiber 600 µm, Flat Tip, Adj. Luer, ID (1 × 6 h)	3	565 / 1.7	860 / 2.6
501300415	Bare Fiber 1000 µm, Flat Tip, Adj. Luer, ID (1 × 6 h)	2.6	945 / 2.9	1400 / 4
503300415	Bare Fiber 1000 µm, Flat Tip, Adj. Luer, ID (1 × 6 h)	2.6	945 / 2.9	1400 / 4

Gas Liquid Cooled Fibers

501200525	GLC 180 Gas-, Liquid Cooled fiber, ID (1 × 6 h)	3	565 / 1.7	1800 / 5.4
503200525	GLC 180 Gas-, Liquid Cooled fiber, ID (1 × 6 h)	3	565 / 1.7	1800 / 5.4

Special Fibers

501200990	Jumper for LFHP, ID (1 × 6 h)	3	565 / 1.7	1800 / 5.4
503200990	Jumper for LFHP, ID (1 × 6 h)	3	565 / 1.7	1800 / 5.4

Handpieces and instruments

501200985	Laser Focus Handpiece
500400370	Instrument for Thoracoscopy, with smoke suction adapter, for 600 – 1000 µm fibers
400100100	Universal Dual Luer Handpiece, for 600 – 1000 µm fibers

Accessories

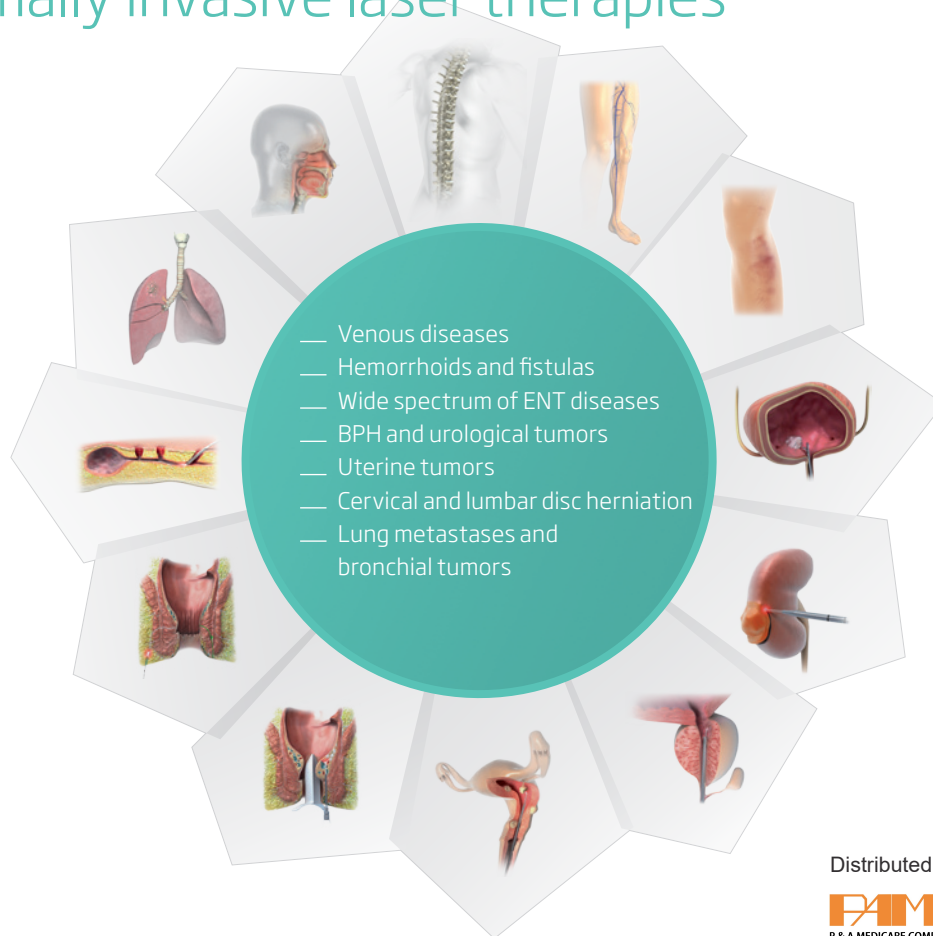
AB2570	Mobile Table for HPD Laser
LA5199	Laser safety goggles 950 – 110 L4 + 1470 L2 (FULL), type: ear piece
LA1371	Laser safety goggles DIR 804 – 1755 L3 (FULL), type: basket, clear
LA5165	Sticker Laser warning 20 × 20 cm
400100115	Medi Strip 0.7/1.2 BF 600 µm, autoclavable – Fiber stripper for BF 600 µm
400100120	Medi Strip 1.0/1.5 BF 1000 µm, autoclavable – Fiber stripper for BF 1000 µm
400100130	Ceramic Fiber Cleaver, autoclavable
AB1908	Touhy Borst Adapter
AB2519	Luer Lock Adapter Female – Female Adapter for GLC fibers
AB2594	Biopsy needle 14 G, 6 cm with cm markings, sterile

Smoke evacuation

MP0016	ATMOSAFE mobile smoke evacuation inclusive autoclavable hose system
MP0017	ATMOS Main filter (ULPA)
MP0018	ATMOS Prefilter (HEPA)
MP0019	ATMOS Air hose, ø 22 mm, L = 2.10 m, single use
MP0020	ATMOS Air hose, ø 22 mm, L = 2.10 m, reusable
MP0021	ATMOS Hose connector straight ø 22 mm to ø 10 mm

Contact us

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



- 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

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