ENT

Minimally invasive laser therapies in ENT

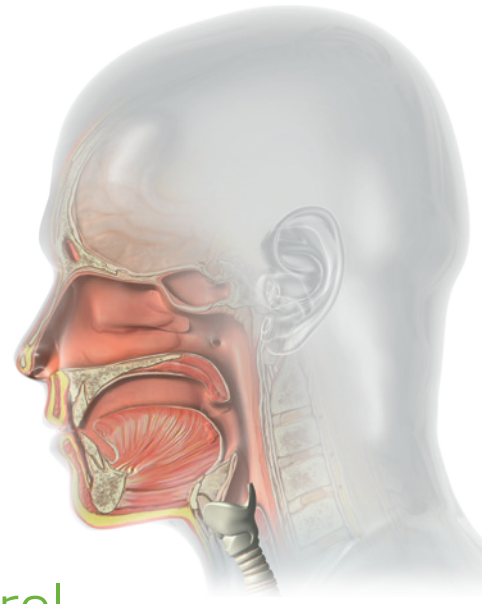
- Precision
- Excellent hemostasis
- Multi-purpose and versatile

Laser solutions for outpatient ENT surgery

The biolitec® laser and fiber systems have a compact, maintenance-free design for effective and safe use in ENT surgery. Specifically developed for various applications, this sophisticated system offers a wide range of possibilities for minimally invasive laser therapy of ear, nose and throat ailments. Whether in the OR, in out-patient clinic or in private practice – the range of applications can be extended according to individual requirements.

Effective, precise, minimally invasive with dedicated solutions in the following areas:

- Endonasal surgery
- Oropharynx
- Dacryocystorhinostomy (DCR)
- Otology
- Larynx
- Pediatrics

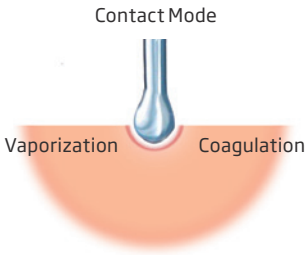


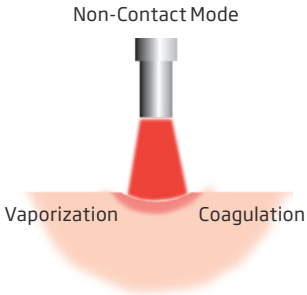
Significantly better hemostasis and control

The wavelength of 980 nm has a high absorbance in hemoglobin whereas the 1470 nm has a high absorbance in water. The thermal penetration depth of the LEONARDO® DUAL laser therefore can be adjusted to the needs of the particular ENT application by just a finger tip. This allows safe and precise procedures to be performed close to delicate structures while protecting the surrounding tissue. Compared to the CO_2 laser, this special wavelength set exhibits a significantly better hemostasis and prevents bleeding during the operation, even in hemorrhagic structures such as nasal polyps and hemangioma. With the biolitec® LEONARDO® DUAL laser system, precise excisions, incisions and vaporization of hyperplastic and tumorous tissue can be performed effectively with almost no side effects.

Advantages

- Microsurgical precision
- Tactile feedback from the laser fiber
- Minimal bleeding, optimal in situ overview during the operation
- Few post-operative measures required
- Short recovery period for the patient





Applications

- Turbinate hyperplasia
- Septal spur, septal deformation
- Epistaxis, Morbus Osler
- Synechias, stenoses in endonasal structures
- Concha bullosa
- Paranasal surgery
- Polyposis nasi et sinuum
- Cysts, mucoceles
- Tonsillotomy
- Laser assisted Uvulopalatoplasty (LAUP)
- Partial glossectomy
- Tumor vaporization

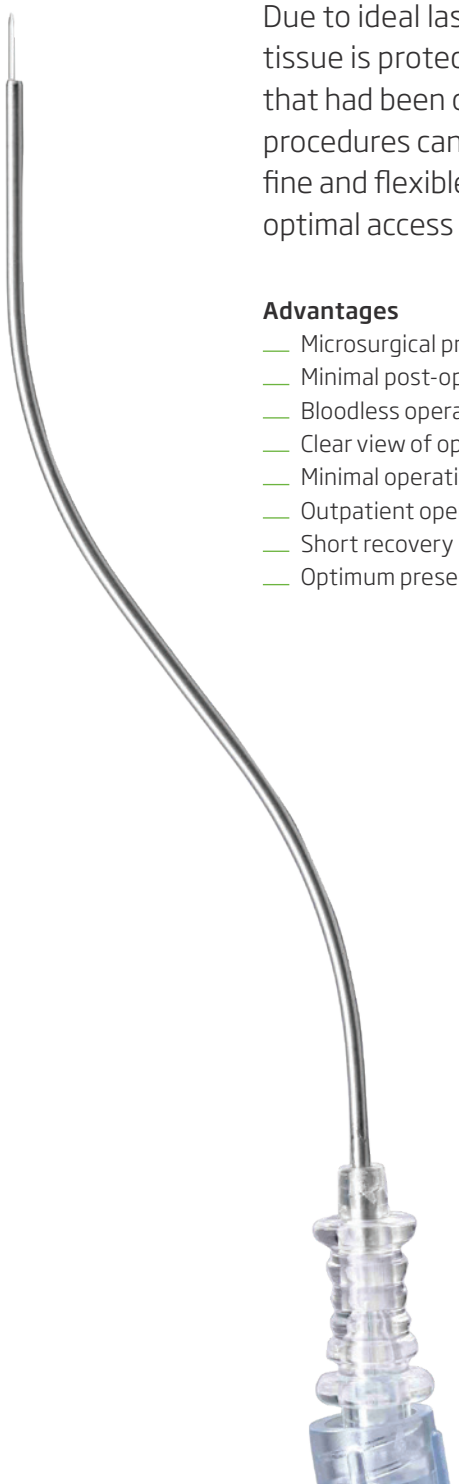
Ambulatory treatment

Endo Nasal surgery

Endoscopic surgery is an established, modern process in the treatment of nasal and paranasal sinuses. However, due to the strong bleeding tendency of the mucosal tissue, surgical treatment in this area is often challenging. A poor operating field of vision due to bleeding often results in imprecise work; prolonged nasal packing and significant patient and doctor effort is usually unavoidable.
The main imperative in endonasal surgery is to maintain the surrounding mucosal tissue as much as possible. New designed fiber with special conical fiber tip on distal end allows atraumatic entrance into nose turbinate tissue and vaporization could be performed in interstitially way to protect mucosa outside completely. Due to ideal laser-tissue interaction of wavelength 980 / 1470 nm, adjacent tissue is protected optimally. This leads to rapid reepithelialisation of bone areas that had been opened up. As a result of the good hemostatic effect, precise procedures can be undertaken with a clear view of the operating area. Using the fine and flexible biolitec® optical laser fibers with core diameter of min. 400 µm, optimal access to all nasal areas is guaranteed.

Advantages

- Microsurgical precision
- Minimal post-operative swelling of tissue
- Bloodless operation
- Clear view of operating field
- Minimal operative side effects
- Outpatient operation possible under local anesthesia
- Short recovery period
- Optimum preservation of surrounding mucosal tissue

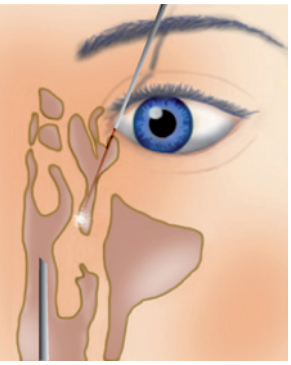


Oropharynx

One of the most frequent operations in the oropharynx area is laser tonsillotomy in children (Kissing Tonsils). In pediatric symptomatic tonsillar hyperplasias, LTT represents a sensible, gentle and very low risk alternative to tonsillectomy (children up to 8 years of age). The risk of post-operative bleeding is minimal. The minimal amount of post-operative pain thanks to the shortened period of healing, the ability to perform out-patient operations (with general anesthesia) and the leaving behind of a tonsillar parenchyma are significant advantages of laser tonsillotomy. Laser-assisted Uvulopalatoplasty (LAUP) can be performed for snorers using the biolitec® system. Due to the ideal laser-tissue interaction, tumor or dysplasias can be removed bloodlessly while keeping the adjacent tissue unaffected. A partial glossectomy can only be done under general anesthesia in a hospital operating room.

Advantages

- Outpatient operation possible
- Minimally invasive, bloodless procedure
- Short recovery time with little post-operative pain



Dacryocystorhinostomy (DCR)

Hindered drainage of tear fluid, caused by a blockage of the lacrimal duct, is a common condition, particularly amongst older patients. The traditional treatment method is to surgically reopen the lacrimal duct externally. However, this is a lengthy, difficult procedure associated with a high potential for side effects such as strong, post-operative bleeding and scar formation. biolitec® has developed a procedure kit for DCR that makes the reopening of the lacrimal duct a safer, minimally invasive procedure. The thin cannula with its atraumatically shaped mandrel is introduced once in order to perform the treatment painless and bloodlessly. Then, the required drainage is set in place using the same cannula. The procedure can be done under local anesthesia and leaves no scars.

Advantages

- Atraumatic procedure
- Limited complications and side effects
- Local anesthesia
- No post-operative bleeding or oedema formation
- No infections
- No scars

Clinical applications

Otology

In the field of Otology, biolitec®'s advanced LEONARDO® diode laser systems extend the range of minimally invasive treatment options. Laser PARACENTESIS is a minimally invasive and bloodless treatment operation that opens the eardrum with a single shot contact technique. The small circular perforated hole in the eardrum, performed by the laser, has the advantage of remaining open for about three weeks. The emission of liquid is easy to handle and therefore the healing process after inflammation is considerably shorter, compared to conventional surgical treatment options.

A large number of patients is suffering from OTOSCLEROSIS in the middle ear. The LEONARDO® technique, combined with flexible and thin 200 micron fibers, offers ear surgeons minimally invasive treatment options for laser STAPEDECTOMY (a single pulse laser shot to perforate the foot-plate) and laser STAPEDOTOMY (a circular opening of the stirrup footplate for pick up special prosthesis afterwards). In comparison to the CO_2 laser, the contact beam method has the advantage of eliminating the risk that the laser energy inadvertently affects other areas in the small middle ear structure.

Larynx

The main imperative in surgical treatments in the larynx area is to avoid significant scar formation and undesired tissue loss since this can significantly affect phonetic functions. The pulsed diode laser application mode is used here. This way, the thermal penetration depth can be further reduced; tissue vaporization and tissue resection can be executed precisely and in a controlled manner, even on sensitive structures, while optimally protecting the surrounding tissue. Main indications: vaporization of tumors, papilloma, stenosis and removal of vocal cord polyps.

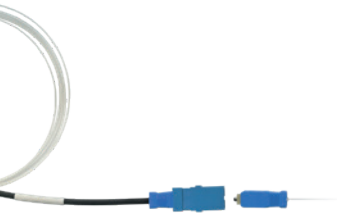
Pediatrics

In pediatric procedures, surgery often involves very narrow and delicate structures. The biolitec® laser system offers considerable advantages. Using extremely thin laser fibers, such as in connection with a microendoscope, even these structures can be easily reached and precisely treated. For example, recurrent papiloma, a very common indication in children, becomes a bloodless and painless operation, with postoperative measures being significantly reduced.

LEONARDO®

Model	**LEONARDO® Mini Dual**	**LEONARDO® DUAL 45**
REF	SL980+1470nm16W	SL980 + 1470 nm 45 W
Wavelength	980 nm and 1470 nm	980 nm and 1470 nm
Power	11 W (980 nm) / 5 W (1470 nm)	max. 45 Watt (1470 nm / 15 Watt + 980 nm / 30 Watt) separately adjustable
Fiber diameter	≥ 360 µm	≥ 360 µm
Aiming beam	635 nm, max. 4 mW	532 nm and 635 nm, green 1 mW, red 4 mW, user controlled intensity
Treatment mode	CW, Pulse Mode (optional)	CW, Pulse Mode, ELVeS® Signal, ELVeS® Segment, Derma Mode
Pulse duration / -break	0.01 – 60 sec. / 0.01 – 60 sec.	0.01 – 60 sec. / 0.01 – 60 sec.
Power supply	110 – 240 VAC, 50 – 60 Hz (7.2 VDC @ 36 W)	110 – 240 VAC, 50 / 60 Hz, 450 VA
Batteries	Li-ion batteries	–
Dimensions (H × B × T)	6 cm × 9 cm × 21.5 cm	approx. 28 cm × 37 cm × 9 cm
Weight	900 g	approx. 8.5 kg

All laser sets incl. 3 safety goggles, foot switch, interlock connector, power cord and manual in a carrying case.



Fibers

Fibers

REF	Product	PU*	length [m]	OD ø [mm]
503200755	ENT Fiber CS, IC	5	2.5	0.96
503200800	ENT Fiber RE USE, IC	5	2.5	0.95
503201921	Reusable Bare Fiber 600 µm, Flat Tip, IC (10 x 1 h)	5	3	0.95
503201919	Reusable Bare Fiber 600 µm, Flat Tip, IC (10 x 12 h)	5	3	0.95
503200740	Bare Fiber 600 µm, Flat Tip, IC	10	2.6	0.96
505200920	Bare Fiber Tip 600 µm	10	0.165	0.96
503200390	Coupling Fiber 400 µm	1	3	–

Fibers / Otology

503200765	ENT-24-DL-CB, IC	5	2.6	0.56

Kits

503300625	DCR Procedure Kit, IC	5	2.6	2.0

Handpieces and Instruments

REF	Single Use Product	PU*	ID
400100300	Laser surgical handpiece 9 cm with suction channel REF S165	25	1.1
400100310	Laser surgical handpiece Larynx 20 cm with suction channel REF S165	25	1.1
	Reusable Product		
AB1326-1	Offset – Rigid 10 cm, 16 ga REF 9132	1	1.1
AB1321-1	Curved – Rigid 11 cm, 16 ga REF 9123	1	1.1
AB1319-1	Straight – Rigid 11 cm for 600 – 800 u Fibers REF 9113	1	1.1
AB1481-1	Straight – Rigid 5 cm, 16 ga REF 912	1	1.1

Accessories

400100115	Medi Strip 0,7 / 1.2 BF 600 µm, autoclavable	1
400100130	Ceramic Fiber Cleaver	1
LA7209	Laser safety goggle LEONARDO DUAL	1
AB1323	Fiber Stripping Tool	1

* packaging unit

Contact us

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

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

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