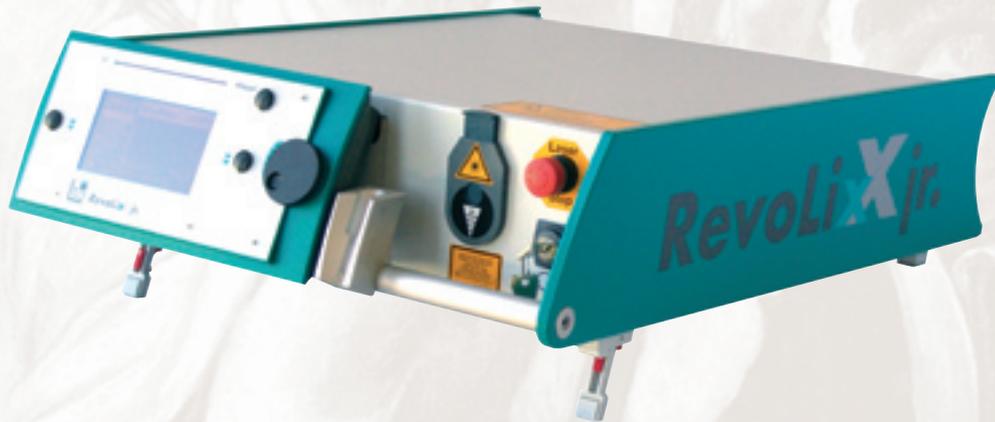


# RevoLiX<sup>®</sup> jr.

Your table top surgical 2micron laser



*new 2micron cw laser  
for ENT, Neurosurgery, Pneumology,  
Gastroenterology, Laparoscopy, Gynaecology, Urology, Visceral Surgery*



**LISA LASER PRODUCTS**  
THE *2micron* COMPANY

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## RevoLix™ - what is the 2micron cw revolution?

For the first time a surgical laser is available for soft tissue surgery which unifies all advantageous properties of existing laser principles in a single unit:

RevoLix combines the cutting and ablation advantages of the well known CO<sub>2</sub> laser - but there is no need for an articulated mirror arm.

RevoLix laser radiation achieves excellent haemostasis like the Nd:YAG laser - but there is no risk of deep tissue penetration.

RevoLix tissue effect is shallow like the Holmium laser - however there is no trauma. Cutting edges are smooth and clean. In open surgery there is no splattering.

RevoLix laser radiation is delivered to the surgical site through flexible fibres - ideal for endoscopic, laparoscopic and minimally invasive surgery.

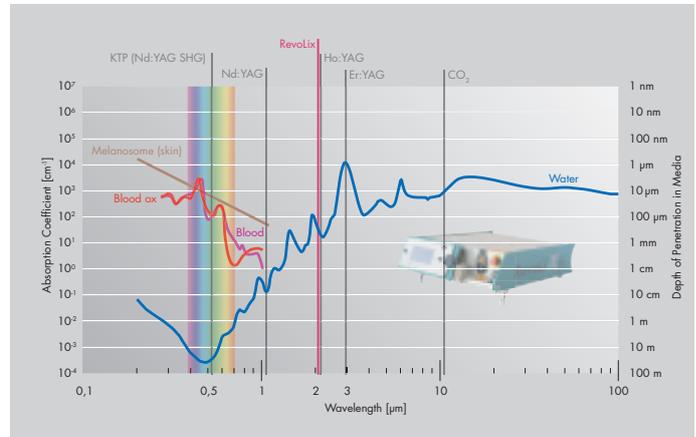
## What are the advantages?

Cutting efficiency of soft tissue and haemostasis is superior to any known alternative. Tissue damage is restricted to less than 1 millimetre beneath the cut. RevoLix preserves excellent vision to the surgical site. There is no vision impairment due to bleeding, excessive bubble formation, tissue fragments or ruptured tissue. Unlike KTP the surgical situs is free of any visible laser glare. The colour neutral laser safety eyewear does not generate discolouration like KTP. Endoscope lenses remain free from splatter when used in open surgery or in laparoscopy.

## RevoLix™ - why 2micron continuous wave?

The RevoLix wavelength at 2.0 micron is known for its suitability for resection and ablation, safe application in an aqueous medium and it generates excellent haemostasis. These excellent properties are due to the efficient absorption at this wavelength by water which is ubiquitous in any tissue. At the RevoLix wavelength of 2.0 micron the absorption is 2.5 times stronger than at the Holmium wavelength providing even more precise cutting in soft tissue surgery. In soft tissue surgery efficient and even cutting combined with strong haemostasis is required. This is provided by the RevoLix laser in an

unmatched manner. The RevoLix laser operates in a continuous wave mode and cuts and vaporises vascular and white tissue without deep penetration or uncontrolled necrosis. Clean cuts and excellent haemostasis are achieved by moving the beam across the surgical site. Generous laser power capacity allows high vaporisation and resection rates at no bleeding and short theatre time.



Absorption spectra of body chromophores

This graph shows the absorption of the most important body chromophores (RED for blood, BLUE for water, BROWN for melanin) at different wavelengths. Depth of penetration is shown at the right. Laser wavelengths are vertical lines.

KTP: In the absence of hemoglobin the KTP laser at 532 nm experiences close to no absorption. At the KTP wavelength water as the main body constituent is almost transparent. Under laser treatment hemoglobin bleaches due to the temperature increase in tissue caused by the laser. This explains the ever decreasing ablation efficiency during a KTP treatment.

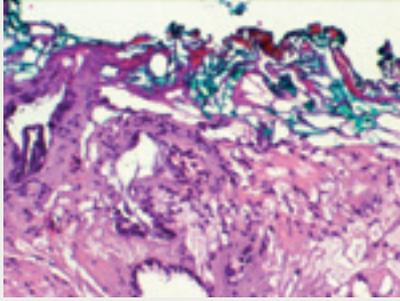
Diode: At 980 nm neither water nor hemoglobin is a strong absorber. This explains the deep penetration at this wavelength.

RevoLix and Holmium: Both lasers are of similar wavelength which is selectively absorbed by the water molecule. Other than hemoglobin water retains its absorptive properties under the temperature increase in tissue caused by the laser. This explains the everlasting ablation efficiency during RevoLix treatment.



## RevoLix - why is it safe ?

In an aqueous medium the laser effect to tissue is restricted to less than 2 millimetres in front of the tip of the fibre. Any tissue further afield is shielded of by the medium. The same mechanism is protecting



tissue and organs adjacent to the cut. Any tissue more distant than 2 millimetre is unaffected by the *RevoLix* laser. Opposed to KTP this property eliminates the risk of unintentional tissue damage during laser surgery.

## applications

### What are the applications ?

The *RevoLix* laser system has demonstrated its superior performance in surgical disciplines such as ENT, Neurosurgery, Pneumology, Gastroenterology, Laparoscopy, Gynaecology, Urology, Visceral Surgery.

### RevoLix - delivery systems perfected

LISA offers a wide range of specialised delivery systems. Please refer to the *LISA Medical Laser Accessories* brochure for various front and side firing fibres, laser applicators and reconditioning tools.

Reusable front firing fibres are stripped and cleaved in preparation for the next case. Disposable front firing fibres are available for the treatment of BPH. All fibres match with the surgical instrumentation recommended and approved by LISA laser products.

### How does RevoLix match with your theatre ?

The new laser is extremely theatre friendly. *RevoLix* does not cause noise strain to theatre personnel. The table top laser fits into any video tower. A laser trolley is available on option. Regular theatre utilities are sufficient (standard power outlet 100 - 240 VAC wide range, no cooling water required). The laser has proven its extreme sturdiness during routine transportation between theatres and other departments.

### RevoLix - operation of the laser

The new laser is easy and safe to operate. The display is easy to understand. Operational modes such as continuous or chopped are selected by push buttons. The power setting is adjusted with a large adjustment wheel. Large characters display the settings on the easy to read display.

### RevoLix - superior economics

Depending on your theatre infrastructure either reusable or disposable fibres may be economical advantageous. For the *RevoLix* laser both of these options are available to your choice.

Beyond a straight purchase of a *RevoLix* laser there are billing schemes on offer which are based on your personal usage pattern. Please contact your local LISA laser products distributor for further details and opportunities.

### Urology

- Vaporisation and excision of bladder tumours
- Bladder neck incision
- Opening of strictures
- Partial nephrectomy
- Laparoscopy
- Condylomata



Excision of kidney tumour

### Haemorrhoids

### Gynaecology

- Excision of polyps
- Endometriosis
- Hysterectomy
- Adhesiolysis
- Conisation
- Condylomata
- Myomectomy



Adhesiolysis

### Neurosurgery

- Fenestration of cysts
- Ventriculocysternostomy
- Catheter recovery
- 3rd ventriculostomy
- Tumour resection
- Haemostasis



Ventriculostomy

### ENT

- Excision of tumours
- Excision of granulomas
- Tonsillectomy
- Stapedectomy
- UVPP
- Soft Palate
- Shrinkage of nasal polyps
- Reduction of turbinates



Excision of tumour

### Pneumology

- Bronchoscopy
- Airway recanalization
- Desobstruction
- Tissue coagulation

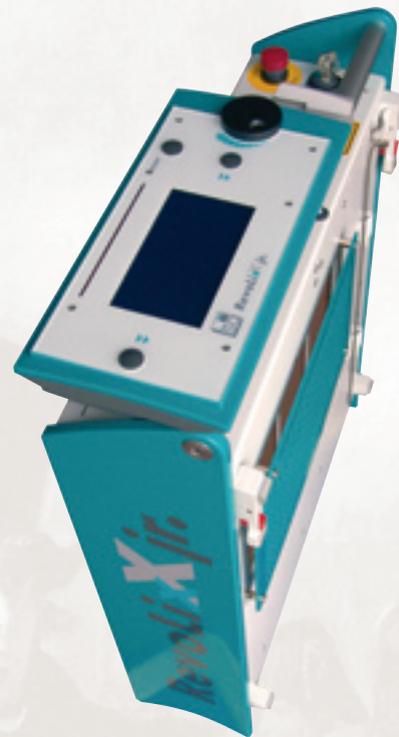


Airway recanalization

### General Surgery

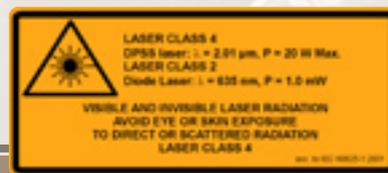
## Technical Specifications *RevoLix jr.*

<b>Laser system</b>	continuous wave DPSS laser
<b>Wavelength</b>	2.0 micron
<b>Power to tissue</b>	1 - 15 Watt cw
<b>Chopped mode</b>	50 - 1000 ms
<b>Repetition rate</b>	0.5 - 10 Hz
<b>Beam delivery</b>	wide range of fibers
<b>Aiming beam</b>	635 nm, > 1 mW, adjustable
<b>Utilities</b>	100 - 240 VAC 50/60 Hz, 6 A max.
<b>Cooling</b>	air
<b>Ambient Temp.</b>	up to 30° C
<b>Dimensions</b>	H 63 x W 46 x L 16cm
<b>Weight</b>	20 kg



### **Laser Trolley**

Optional laser trolley including drawer and power points



Safety Standards: IEC 60601  
CE acc. Council Directive 93/42/EEC

U.S. federal law restricts this device to sale by  
or on the order of a physician.

Specifications are subject to change without notice. Made in  
Germany 2008-10 V06

LISA laser products OHG  
Max - Planck - Str. 1  
D - 37191 Katlenburg-Lindau  
Germany

fon: +49 (0)5556-9938-0  
fax: +49 (0)5556-9938-10  
e-mail: [info@lisalaser.com](mailto:info@lisalaser.com)  
web: [www.lisalaser.com](http://www.lisalaser.com)



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