SphinxX

HOLMIUM LASER

Versatile
Holmium laser
for Urology,
Spine and ENT

LISALaser
PRODUCTS
An OmniGuide Company

Sphinx - why Holmium?

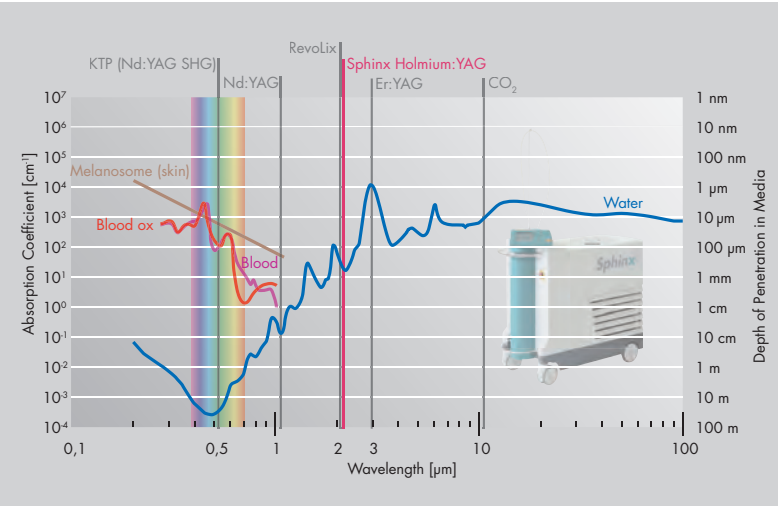
The versatile Two Micron Holmium laser

Strong absorption - efficient ablation

The pulsed Two Micron laser radiation of the ***Sphinx*** Holmium laser is highly absorbed in water and in biological tissue. The laser energy is converted into heat within a depth of the tissue of less than 0.5 mm.

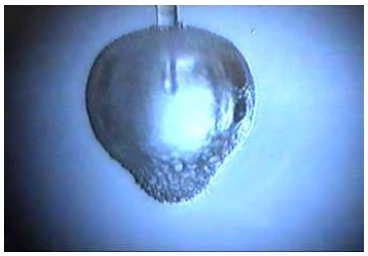
Strong absorption - shallow penetration

In soft tissue surgery efficient ablation is achieved without deep penetration or uncontrolled tissue necrosis.



Moses effect - safe operation

An aqueous solution like saline is non-transparent for the Holmium laser wavelength. The laser beam reaches to the extent of the steam bubble which is created by each laser pulse at the tip of the laser fibre. Any tissue further away is not affected by the Holmium laser radiation directly. The steam bubble is the optical pathway for the laser radiation to a stone or tissue which is touched by the forefront of the steam bubble (Moses effect).



Holmium laser steam bubble at 2 Joules

Steam bubble – tissue separation and hemostasis

In HoLEP the impact of the expanding steam bubble is used to release the prostatic adenome from the surgical capsule at the anatomic boundary. At the same time heat from the steam bubble coagulates the wound and stops superficial bleeding.

Note: The tissue separation in HoLEP is created by the expanding steam bubble and not by the laser beam itself.

Dusting, reduced stone retropulsion, excellent hemostasis

For stone dusting the pulse duration is set to 800 µs for minimum retropulsion. Also long laser pulses of up to 800 µs provide an excellent hemostasis in soft tissue surgery.

Efficient stone fragmentation

Laser pulses as short as 150 µs make the ***Sphinx*** highly effective in the fragmentation of calculi and ablation of hard tissue. The ***Sphinx*** Holmium laser is characterised by an extraordinary intense pulse peak power of up to 15 kW.

Operation of the Laser

The ***Sphinx*** Holmium laser is easy and safe to use. The user is guided by easy-to-understand menus. All settings of the laser are displayed by coloured bar graphs which can be recognised at a glance. The user is supported by acoustic signals. Unique features are the vertical fibre port for user-friendly fibre connection and the extendible fibre support which ensures that the laser fibre is guided to the operating area from above. Uneven floors and thresholds are easily passed because of large running wheels and an independent wheel suspension. Considering its mobility and sturdiness, the laser system is best suited for service in multiple operating theatres and for mobile services.

Advantages

Adjustable laser pulse duration

In order to optimise the effect on various types of tissue the duration of the laser pulse can be adjusted within the range of 150 µs to 800 µs while the pulse energy is kept constant. The adjustable laser pulse duration is particularly advantageous for a multi-disciplinary use of the ***Sphinx*** Holmium laser system.

Programme memory

The ***Sphinx*** Holmium laser is equipped with a specific programme memory allowing to save up to 50 laser settings for individual multi-disciplinary applications.

Reusable and disposable applicators and laser fibres

Special laser applicators and laser fibres are available for the various medical applications. To keep the running costs of the ***Sphinx*** laser low, most of the laser applicators and fibres are reusable and can be steam sterilized. Disposable laser fibres are available for those OR settings where reprocessing economically is not reasonable. Please refer to the ***Surgical Laser Accessories*** brochure and to the ***Surgical Laser Fibres*** brochure for details.

Integrated active cooling

The integrated active cooling allows long time operation even at elevated ambient temperatures and produces less noise than the competing products with radiators and fans only.

Urology

Laser Lithotripsy

Calculi in the bladder, ureter or kidney are fragmented by rapid evaporation of residual water inside the stone upon absorption of the laser radiation. At the long pulse setting (800 µs) the ***Sphinx*** Holmium laser does not apply external kinetic force, thus preventing the calculi from being pushed further inside the ureter.

The LISA ***FlexGuard***™ laser fibre insertion sheath ***provides*** protection of the flexible scope against damage during insertion of the laser fibre. Please refer to our ***FlexGuard***™ brochure.

Treatment of BPH

Sphinx Holmium lasers offer different treatment modalities for BPH. Depending on the surgical situation and the delivery system used the adenoma may be resected, enucleated (HoLEP) or ablated (HoLAP). All treatment modalities benefit from the excellent haemostatic properties of the ***Sphinx*** Holmium laser which is provided by the long pulse duration in the tissue mode. The patient benefits from the bloodless laser treatment, early catheter removal, immediate symptomatic improvement, better urinary flow and a shorter hospital stay. Resected tissue is available for subsequent biopsy.

Opening of Strictures

Strictures in the ureter and the urethra are easily opened - virtually without any bleeding.

Treatment of Bladder Tumours

The low penetration of the ***Sphinx*** Holmium laser makes it the ideal instrument for the treatment of bladder tumours. A special aiming beam setting allows the usage together with photo-dynamic-diagnosis under blue light illumination.

Bladder Neck Incisions

Turner Warwick incisions are quick and easy. Excellent vision is provided during the entirely bloodless procedure.

Urology

Laser lithoptripsy

HoLEP

HoLAP

Opening of strictures

Excision of bladder tumours

Spine

Minimally invasive spine surgery (MISS)

Foraminoplasty

Discectomy

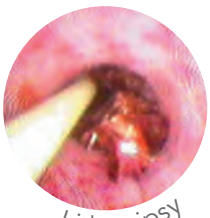
PLDD

ENT

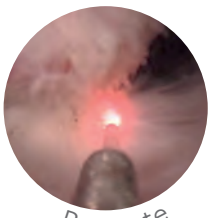
Endonasal surgery

Larynx surgery

Ablation of nasal and laryngeal polyps



Lithotripsy



Prostate

Spine

ENT

Spinal Surgery

The ***Sphinx*** Holmium laser offers a variety of treatment options for cervical and lower back pain patients. The ***Sphinx*** Holmium laser ablates soft tissue such as disk material and hard tissue such as bone and osteophytes in Laser Foraminoplasty. In Laser Discectomy it removes residual nucleus pulposus material in preparation for stabilisations and fusions. The thermal load to the surrounding tissue is controlled by the shallow penetration of the Holmium laser radiation and the adjustable pulse duration.

ENT

Stenosis of the nose is treated by trimming of turbinates and the nasal septum. Nasal and laryngeal polyps can easily be removed. All of these procedures can be performed as outpatient treatments. Due to the narrow zone of necrosis, postoperative pain is significantly reduced compared to other laser techniques like Nd:YAG and Diode lasers and conventional procedures.

Optimized tissue effect due to adjustable pulse duration

Reusable and disposable laser applicators and fibres

High mobility

Uneven floors and thresholds are easily passed because of large wheels and independent wheel suspension.

User friendly

Laser parameters are displayed as coloured bar graphs which are easily readable.

Control console swivels by 270°.

Vertical fibre port and the extendible fibre support for excellent useability

Low profile ***Kix*** footswitch

Highlights

- **More** user value
- **Increased** laser pulse energy for better stone fragmentation
- **Instant laser** pulse emission at preset energy
- **Red** or green aiming beam
- **Enhanced display** contrast for better readability
- **Low** noise emission and better performance

Kix footswitch
Order No. 101 600 215

Technical Specifications SphinxX

	Sphinx 45 Litho	Sphinx 60	Sphinx 80	Sphinx 100
Laser system	Holmium-YAG laser litho technology	Holmium-YAG laser	Holmium-YAG laser	Holmium-YAG laser
Wavelength	2123 nm	2123 nm	2123 nm	2123 nm
Power at fibre tip	45 W (adjustable)	60 W (adjustable)	80 W (adjustable)	100 W (adjustable)
Pulse energy	0.5 - 4.0 J	0.5 - 4.5 J	0.5 - 4.5 J	0.5 - 4.5 J
Frequency	single, 4 - 30 Hz	single, 4 - 30 Hz	single, 4 - 30 Hz	single, 4 - 30 Hz
Pulse duration	150 - 800 µs	150 - 800 µs	150 - 800 µs	150 - 800 µs
Pulse peak power	15 kW	15 kW	15 kW	15 kW
Aiming beam	635 nm (red) or 532 nm (green), 1 mW (adjustable), 3R	635 nm (red) or 532 nm (green), 1 mW (adjustable), 3R	635 nm (red) or 532 nm (green), 1 mW (adjustable), 3R	635 nm (red) or 532 nm (green), 1 mW (adjustable), 3R
Mains supply	220 - 230 VAC,	220 - 230 VAC,	220 - 230 VAC,	220 - 230 VAC,
(~, N, PE)	50/60 Hz 30 A	50/60 Hz 30A	50/60 Hz 30 A	50/60 Hz 30A
Mains supply	400 VAC,	400 VAC,	400 VAC,	400 VAC,
(3~, N, PE)	50/60 Hz 16 A	50/60 Hz 16 A	50/60 Hz 16 A	50/60 Hz 16 A
Cooling	integrated cooling	integrated cooling	integrated cooling	integrated cooling
Weight	ca. 180 kg	ca. 180 kg	ca. 180 kg	ca. 180 kg
Dimension	H 1040 x W 450 x L 1070 mm			
Environmental conditions	15 - 28 °C / 10 - 90 % humidity (non-condensing)			

Safety Standards: IEC 60601

CE acc. Council Directive 93/42/EEC

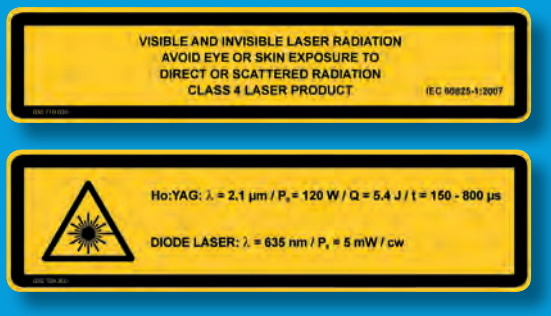
U.S. federal law restricts these devices to sale by or on the order of a physician

IMPORTANT NOTICE:

The information provided is a general overview of potential clinical applications of the described products. National health care regulations vary between countries and may exclude certain clinical applications at your location. The user assumes responsibility to be updated about national deviations from the applications listed above.

* In the USA the products are not intended for use in clinical applications in neurosurgery.

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



Specifications are subject to change without notice.
Made in Germany 2019 - 02
Brochure Order no. 036 001 082

LISA Laser Products GmbH
Albert-Einstein-Str. 4
37191 Katlenburg-Lindau
Germany
fon: +49 5556 9938-0
fax: +49 5556 9938-10
info@lisalaser.de www.lisalaser.de

LISA Laser PRODUCTS
An OmniGuide Company