

# SphinxX

HOLMIUM LASER

Versatile Holmium laser  
for Urology, Spine and  
ENT



COMPETENCE IN SURGICAL LASER SINCE 1989  
LASER TECHNOLOGY - MADE IN GERMANY  
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## Sphinx - why Holmium?

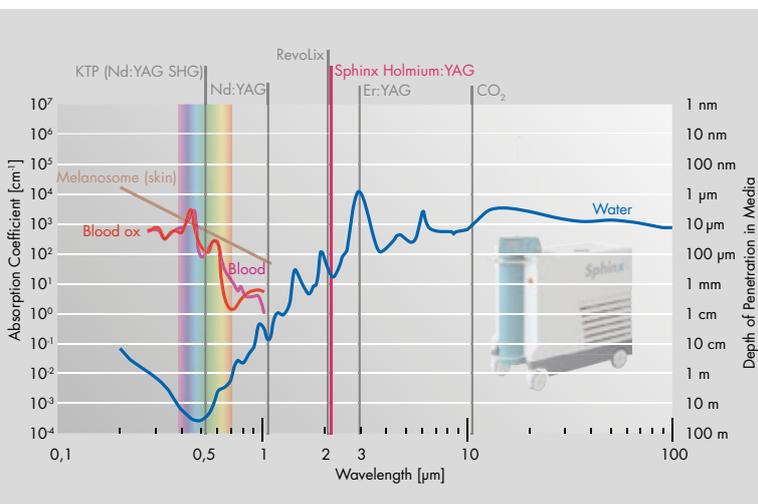
### The versatile Two Micron Holmium laser

#### 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 and thus used for ablation purposes by vaporization of aqueous cellular fluid in tissue.

#### Strong absorption - shallow penetration

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



#### Strong absorption - safe operation

In an aqueous solution, the range of the Holmium laser radiation is restricted to the volume immediately in front of the fibre tip thus allowing the safe application also on sensitive surfaces. Tissue more than 5 mm apart from the fibre is screened off by the aqueous solution and will not be affected by the laser radiation.

#### Short pulses - 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.

#### Long pulses - excellent hemostasis

Long laser pulses of up to 800 µs provide an excellent hemostasis in soft tissue surgery.

### 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. Due to the bright display, the screen can clearly be read even from a distance. In addition, the user is supported by acoustic signals. Unique features are the vertical fibre port for userfriendly 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 the system's 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. As a result, the laser is not only used for the ablation and fragmentation of hard tissue like urinary stones but also for almost bloodless cutting of soft tissue. This makes the **Sphinx** Holmium laser system a versatile instrument in surgery. While short laser pulses with a high pulse peak power are more suitable for the fragmentation of calculi, long laser pulses are better suited for cutting of soft tissue with efficient hemostasis. 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 applicators and fibres are reusable and can be steam sterilized. Please refer to the **Medical Laser Accessories** brochure and to the **Medical Laser Fibres** brochure for details. Disposable fibres are available for those OR settings where reprocessing economically is not reasonable.

#### 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. Contrary to mechanical and electro-hydraulic systems the **Sphinx** Holmium laser does not apply external kinetic force, thus preventing the calculi from being pushed further inside the ureter. For the treatment of stones in demanding locations like the lower pole **Sphinx 30 litho** lasers are compatible with the 200 µm LithoFib laser fibre. This laser fibre preserves the full mobility of your flexible ureterorenoscope at no force. This fibre is agreed to be the thinnest and most flexible product on the market for laser lithotripsy.

The high power **Sphinx 60**, **Sphinx 80** and **Sphinx 100** accept the highly flexible 273 micron core diameter FlexiFib laser fibres as standard.

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.

### Ablation of Condylomata

Condylomata are precisely ablated by the **Sphinx** Holmium laser. The superficial tissue effect excises the tissue to the desired depth providing excellent haemostasis. Shallow necrosis enables immediate healing.

## Urology

Laser lithotripsy

HoLEP

HoLAP

Opening of strictures

Excision of bladder tumours

Condylomata

## 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. For endoscopic procedures the SpineLas applicator offers all required treatment options.

## ENT

Stenosis of the nose is treated by trimming the 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 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.

The control console swivels by 270°.

Vertical fibre port and the extendible fibre support for excellent useability



## Highlights

- ★ **Substantial** re-engineering for more user value
- ★ **Output** increased laser pulse energy for better stone fragmentation
- ★ **Trigger** instant pulse emission at preset energy
- ★ **Pilot** optional red or green aiming beam
- ★ **Display** increased contrast for better readability
- ★ **Chiller** less noise emission and better performance



# Technical Specifications **SphinxX**



	Sphinx 30 Litho	Sphinx 45 Litho	Sphinx 60	Sphinx 80	Sphinx 100
<b>Laser system</b>	Holmium-YAG laser litho technology	Holmium-YAG laser litho technology	Holmium-YAG laser	Holmium-YAG laser	Holmium-YAG laser
<b>Wavelength</b>	2123 nm				
<b>Power at fibre tip</b>	30 W (adjustable)	45 W (adjustable)	60 W (adjustable)	80 W (adjustable)	100 W (adjustable)
<b>Pulse energy</b>	0.5 - 4.0 J	0.5 - 4.0 J	0.5 - 4.5 J	0.5 - 4.5 J	0.5 - 4.5 J
<b>Frequency</b>	single, 4 - 20 Hz	single, 4 - 30 Hz			
<b>Pulse duration</b>	150 - 800 µs				
<b>Pulse peak power</b>	15 kW				
<b>Aiming beam</b>	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	635 nm (red) or 532 nm (green), 1 mW (adjustable), 3R
<b>Mains supply (~, N, PE)</b>	220 - 230 VAC, 50/60 Hz 16 A	220 - 230 VAC, 50/60 Hz 30 A	220 - 230 VAC, 50/60 Hz 30A	220 - 230 VAC, 50/60 Hz 30 A	220 - 230 VAC, 50/60 Hz 30A
<b>Mains supply (3~, N, PE)</b>		400 VAC, 50/60 Hz 16 A			
<b>Cooling</b>	integrated cooling				
<b>Weight</b>	ca. 160 kg	ca. 180 kg	ca. 180 kg	ca. 180 kg	ca. 180 kg
<b>Dimension</b>		H 1040 x W 450 x L 1070 mm			
<b>Environmental conditions</b>	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.

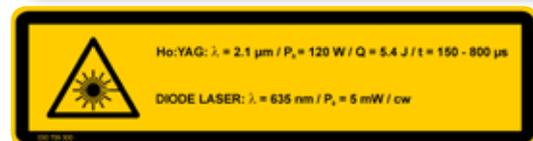
National health care regulations vary between countries and may exclude certain clinical applications at your location.

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.

Specifications are subject to change without notice.

Made in Germany 2015-10  
Brochure Part No. 036 001 072



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