Urolase SP

Urology laser for lithotripsy

Lithotripsy:

- Fragmentation
- Dusting
- Popcorning

Soft tissues:

- Stricture dissection
- Tumor removal
- Coagulation

For specialists:

- Maximum efficiency of destroying stones of any type, density, and size
- Ability to breaking up stones into dust – fragments less than 1 mm, which are removed naturally and do not become the basis for the formation of new stones
- Minimal retropulsion level compared to other laser lithotripters
- Intuitive graphic interface
- Can be installed into an endoscopy tower
- Ergonomic design

For clinics:

- Urolase SP provides most efficient technology for relatively low price
- Low cost of consumables
- Reduced length of hospital stay; more surgeries during the reporting period
- No need for regular maintenance
- Low power consumption, connection to standard power grid

For patients:

- Reduced length of hospital stay
- Minimally invasive high-tech surgery
- Reducing the cost of treatment

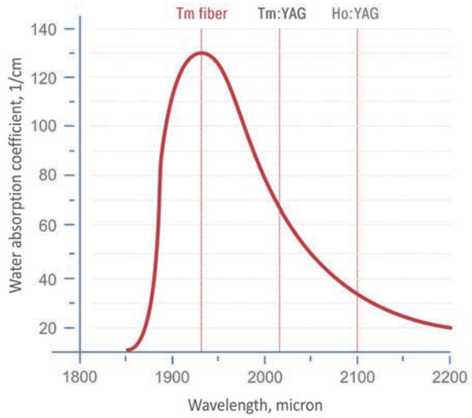
Urolase SP – innovative laser for lithotripsy in kidneys, ureters and bladder

Urolase SP is used for cystolithotripsy, rigid and flexible ureteronephroscopy, percutaneous, mini-percutaneous, ultra-mini-percutaneous and micropercutaneous surgeries. The device can be easily integrated into an endoscopic tower, due to its low weight and dimensions, there is no need for constant service. Moreover, connection through special adapters is not required – Urolase SP works from a standard outlet.

The new super-pulse mode of the thulium fiber laser allows both fragmentation and dusting of stones with high efficiency, regardless of density and composition of the stone.

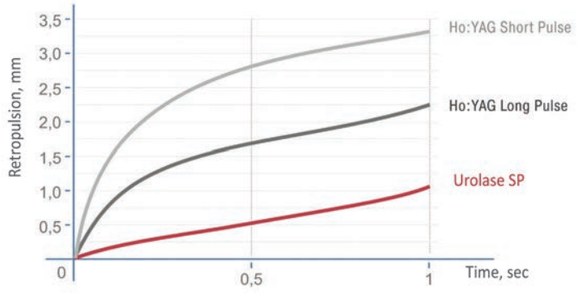
Advantages

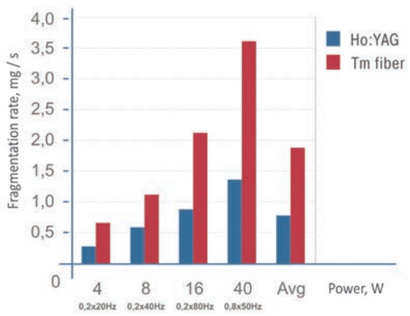
Effective stone Lithotripsy



Higher absorption of 1.94 μm wavelength radiation in water (4.5 times higher than that of Ho:YAG and 2 times higher than Tm:YAG), combined with a super-pulse mode, allows the laser to break up stones of any density with maximal efficiency.

The features of the super-pulse mode provide minimal stone retropulsion due to a longer pulse length compared to a holmium laser.





The stone fragmentation rate in the “Dusting” mode of the Thulium Fiber Laser is at least 2 times faster than in the best Holmium laser systems.

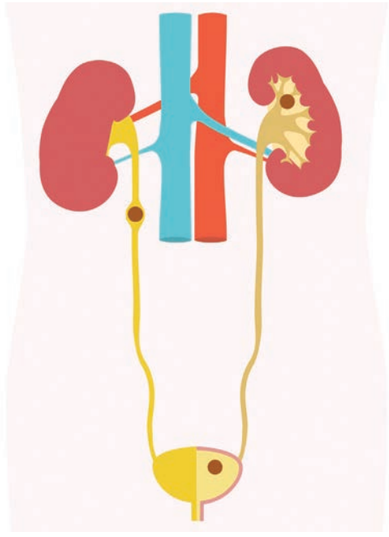
Lithotripsy of high-density stones of different localization

Urolase SP provides fragmentation of stones of any density in different localizations. The dusting time for stones of about 10 mm in size is 2 to 4 minutes. Study (Thulium fiber laser for lithotripsy of large renal stones: initial experience", O. Traxer, A. Martov, et al. WCE 2018*) demonstrated fragmentation of a stone with dimensions of 30x20x20 mm with high density in the renal pelvis using the “Dusting” and “Popcorning” modes for a total time of 37 minutes. These modes allow fragmentation of large stones of any composition during one surgery preventing from using extractors and baskets.

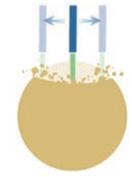
Study result*

Localization	Dimensions, mm	Density, HU	Lithotripsy time and mode, min
Kidney	30x20x20	1100-1400	23 min. - Dusting 14 min. – Popcorning Total: 37 min.

Lithotripsy modes



Fragmentation is a mode of fast and efficient lithotripsy. Energy settings up to 6 J help to break the stone into fragments suitable for extraction.



Dusting - a mode of breaking up a stone into the "dust", which helps to remove stones from the ureter and kidney without retropulsion and the use of additional extractors.

Popcorning is a special mode for destroying residual stone fragments. This mode creates a "vortex" effect – when lasing, fragments are attracted to the fiber tip and gradually disintegrated into dust.

Technical specifications

Wavelength, micron	1.94	
Mode	SuperPulsed	CW
Maximum power, W	35	30
Pulse energy, J	0.025...4	-
Pulse repetition rate, Hz	1400	
Fiber diameter, μm	150...1000	-
Device cooling	Air	
Supply voltage, V	220 ± 10%	
Supply frequency, Hz	50...60	
Power consumption, VA, no more	1000	
Dimensions H * W * D, mm	286*460*545	
Weight, kg	38	

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VPG LaserOne LLC (formerly IRE-Polus LLC) is a vertically integrated company established by an outstanding Soviet scientist, Valentin Pavlovich Gapontsev, the founder of the international scientific and technical IPG Photonics Corporation.

VPG LaserOne is a globally recognized leader in the field of fiber lasers and amplifiers, as well as devices and systems based on them. Drawing on deep expertise and decades of experience in laser equipment production, VPG LaserOne LLC designs and supplies medical laser devices and surgical fiber for a wide range of applications.

VPG LaserOne develops advanced medical laser devices through a full-cycle process that includes device engineering, development of clinical application protocols, in-vitro research in its proprietary laboratory and clinical trials conducted in collaboration with leading clinical centers.

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