

# MULTIPULSE TM+1470

PERFORMANCES FROM THE START



**JENA SURGICAL**  
LASER AT YOUR SIDE

# DESIGNED TO IMPROVE YOUR PATIENT'S LIFE

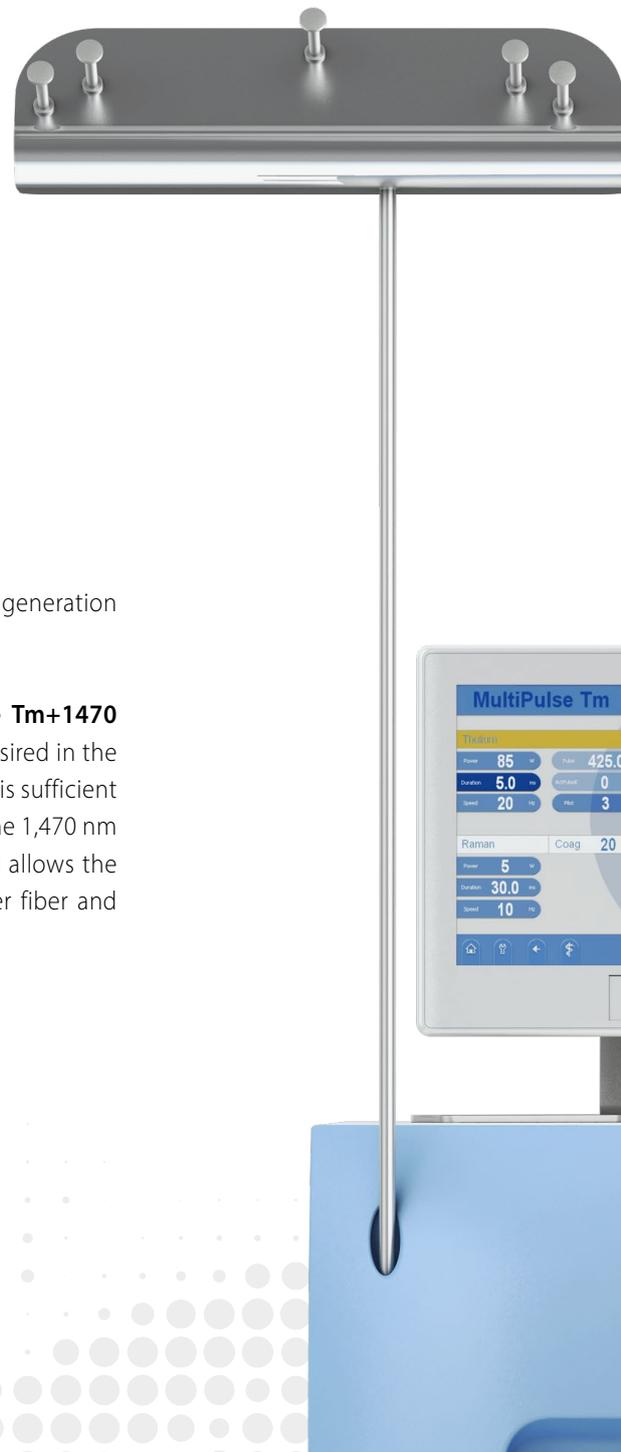
## MULTIPULSE Tm+1470 - THE THULIUM LASER COMBINED WITH 1,470 NM WAVELENGTH

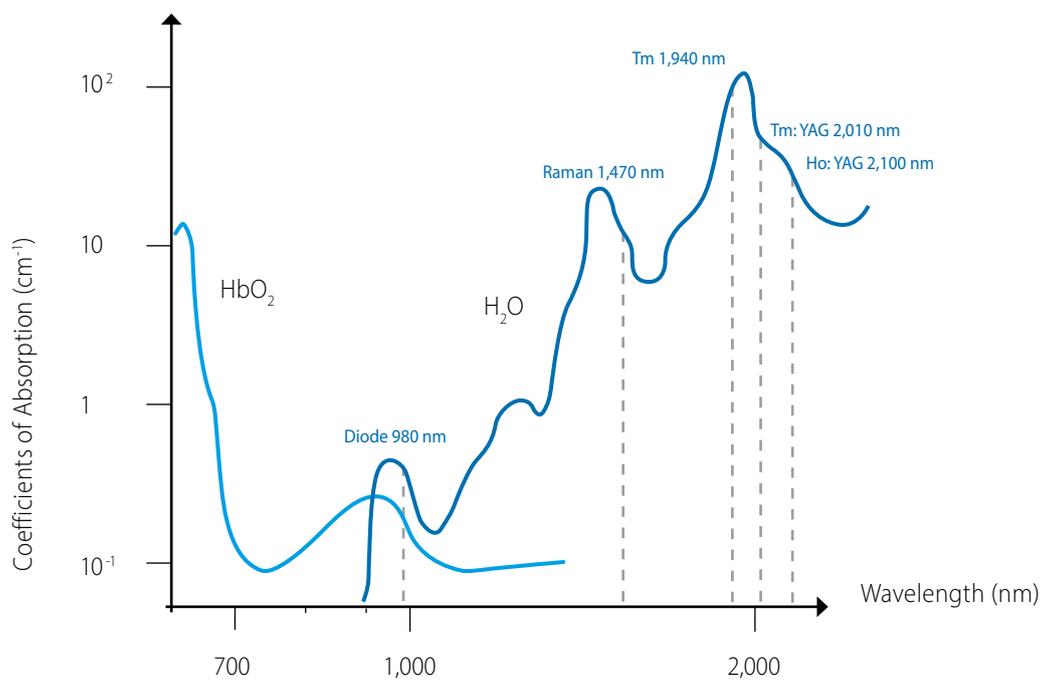
JenaSurgical introduces the **MultiPulse Tm+1470**, the only system that combines a 1,940 nm last generation Thulium laser with a 1,470 nm Raman laser (maximum power 120 W + 30 W). The system is designed to deliver the best performance in the operating room!

## UNMATCHED IN TERMS OF EFFICIENCY, ACCURACY AND SAFETY

The wavelength of 1,940 nm is absorbed by water more than 1<sup>st</sup> generation Thulium at 2,010 or Holmium at 2,100 nm.

To have a more significant coagulation effect, the **MultiPulse Tm+1470** integrates a 1,470 nm Raman laser, which can be combined as desired in the same fiber optics. When a greater coagulation effect is required, it is sufficient to change from "cutting-mode" to "coagulation-mode", selecting the 1,470 nm wavelength only by pressing a different pedal. The pedal control allows the surgeon to select the required mode without changing the laser fiber and without looking away from the operating field.





The ability to mix or separate these two wavelengths allows optimization of the laser beam interaction with the tissue. This ensures perfect vaporization and better hemostasis when cutting, using less working power and thus minimizing residual carbonization.

Moreover, in addition to the continuous mode (CW), the **MultiPulse Tm+1470** can work with pulsed emission in order to operate with maximum precision and delicacy, even in those areas that require “colder” action.



# THULIUM LASER COMBINED WITH 1,470 NM WAVELENGTH

The **MultiPulse Tm+1470** is a versatile and multi-disciplinary system, recommended for a wide range of applications in UROLOGY and GENERAL SURGERY.

## ADVANTAGES FOR THE SURGEON

- Specific for ablation / cutting & hemostasis / coagulation effect
- Low residual tissue carbonization for a clean and clearly visible surgical field
- Ability to always perform the histopathological exam of enucleated tissue samples (it is possible to request the morcellator as a non-integrated optional accessory)
- Pedal control for perfect wavelength modulation without taking eyes off from the surgical field and without changing fiber
- Safety, accuracy and speed of treatments

## ADVANTAGES FOR THE PATIENT

- Reduction in side effects (e.g. TUR syndrome, bleeding, etc.)
- Recommended for the treatment of patients with coagulation problems (e.g. those being treated with anticoagulants)
- Suitable for patients with large prostates (more than 70 g), as a minimally invasive alternative to the traditional method of open adenectomy
- Shorter treatment time and hospital stay as well as faster functional recovery with a clear improvement in quality of life
- Greatly reduced time or none for post-operative catheterization
- Low rate of recurrences

# MULTIPULSE TM+1470

FDA CLEARED



**LOW-NOISE SYSTEM**

with limited power consumption

**TDFA (THULIUM DOPED FIBER AMPLIFIER)**

technology for better beam uniformity, advanced performance and less maintenance requirements

**UNIQUE COMBINATION OF TWO WAVELENGTHS**

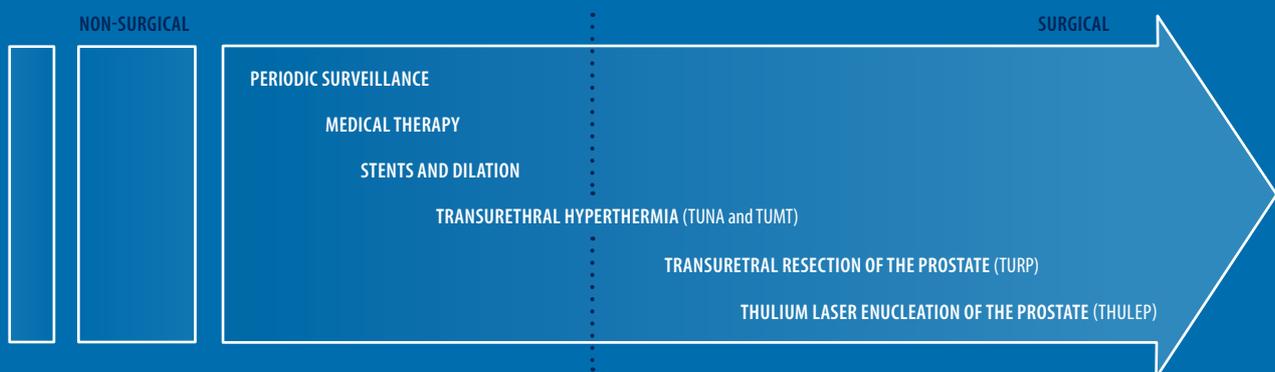
1,940 nm and 1,470 nm

# UROLOGY

## UROLOGY APPLICATIONS

The MultiPulse Tm+1470 is intended for use for surgical procedures using open, laparoscopic and endoscopic incision, excision, resection, ablation, vaporization, coagulation and hemostasis of soft tissue in use in medical specialties especially in urology:

- BPH treatments (ThuLEP, ThuVAP, ThuVEP)
- Ablation and resection of Bladder Tumors (TURBT)
- Bladder Neck Incisions (BNI)
- Urethral Tumors
- Transurethral incision of the prostate (TUIP)
- Urethral Strictures
- Partial Nephrectomy



ThuLEP (Thulium Laser Enucleation of Prostate) is the innovative transurethral thulium laser technique of anatomical enucleation. The advanced technology of the MultiPulse Tm+1470 enables work with an excellent view of the operative field, thanks to the perfect hemostasis and the absence of residual material from carbonization.

The mix of its two wavelengths, properly calibrated, enables net and clean surgical incisions with good execution speed, reduces operating time and allows prostates of any size to be treated. This procedure achieves the complete removal of adenomatous tissue, with maximum urodynamic effectiveness, minimal side-effects and lack of bleeding complications.

## THULEP FOR BPH

performed by using the MultiPulse Tm+1470.



[Courtesy of Dr. R. Hurlle, MD - Consultant of the Operating Unit of Urology and Andrology Istituto Clinico Humanitas, Milan - Italy]

## THULEP BENEFITS

- Use of saline not glycine – long operations on large prostates (> 200 gm) possible
- Fewer nursing requirements, lower costs
- No electromagnetic interaction with patient
- Shorter catheter time, shorter hospital stays (outpatient/24 hour stay)
- Identical surgical cavity as TURP
- Urodynamic outcomes identical to TURP
- Enough tissue for histology
- Minimal bleeding
- Minimal risk of transfusion
- No TURP syndrome



# UROLOGY

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Although transurethral resection of bladder tumor (TURBT) is known as the gold standard treatment for bladder cancer, it is also associated with a significant risk of residual tumors and histological evaluation. In order to overcome the limitations of conventional TURBT, the thulium laser treatment represents an alternative to conventional transurethral resection procedures.



[Courtesy of Prof. C. Imbimbo, MD - Director of Surgical Andrology, Università Federico II, Naples - Italy]

Resection of a bladder tumor, performed by using the MultiPulse Tm+1470. The applied technique results in excellent hemostasis, limited thermal damage and reduced tissue carbonization.

The new technique based on a thulium laser allows en bloc excision of tumors with excellent hemostasis, low residual tissue carbonization and a clearer visual field due to a better coagulation and a smoother cut and, therefore, is a feasible, safe, and effective procedure.

## THULIUM LASER ENDOSCOPIC EN BLOC ENUCLEATION OF NONMUSCLE-INVASIVE BLADDER CANCER

Migliari R, Buffardi A, Ghabin H. J Endourol. 2015 Nov; 29(11):1258-62. doi: 10.1089/end.2015.0336. Epub 2015 Aug 3.



### OBJECTIVES

To evaluate if thulium laser enucleation of bladder tumor (ThuLEBT) offers any advantage over monopolar resection of nonmuscle-invasive bladder cancer (NMIBC) without increasing complications.



### PATIENTS AND METHODS

From February 2012 to September 2013, 58 patients (41 males and 17 females) newly diagnosed with having a single papillary bladder tumor more than 1 cm in diameter were selected for this prospective study on ThuLEBT. A similar historical cohort of 61 patients who underwent traditional monopolar resection (TURB-T) of NMIBC (Group B) was used to compare the two procedures.



### RESULTS

Mean tumor diameter in the ThuLEBT group was 2.5 cm (range 0.5-4.5). Mean operative time was 25 minutes (range 12-30). Re-resection and cold cup biopsy of the tumor base (in 90 days) were negative for bladder cancer (BC) persistence or recurrence in all patients with NMIBC treated with ThuLEBT. In Group B, seven patients were found with disease persistence. In eight cases of TURB-T patients, no detrusor muscle was identified, while it was always easily identified in the ThuLEBT group. No patient in Group A experienced obturator nerve reflection intraoperatively and no bladder perforation was evidenced in dome-located neoplasm; when involved, ureteral meatus was sharply excised without subsequent postoperative evidence of distortion. No significant intraoperative or postoperative bleeding occurred in all but one patient in the two groups.



### CONCLUSIONS

ThuLEBT may represent a potential alternative to TURB-T, which nowadays is considered the standard for diagnosis and treatment of NMIBC. In our study, ThuLEBT allowed accurate reporting of neoplastic depth invasion, suggesting the possibility to avoid a second-look resection at 90 days. All the different intravesical sites of the BC may be enucleated with the thulium laser, which offers advantages over the monopolar energy, especially when the tumor is located in the lateral bladder wall, at the bladder dome, or in the perimeatal zone.

# GENERAL SURGERY

## URETHRAL STRICTURES

The MultiPulse Tm+1470 is a precious tool for surgeons in many procedures, from routine through to the more complex operations, both in endoscopic and open surgeries. This is a high-performance surgical instrument for tissue resection, guaranteeing the surgeon precise control over both, cutting and ablation through the intuitive regulation of the main operating parameters.

The MultiPulse Tm+1470 allows to work quickly with an outstanding hemostatic effect, that can be adjusted as required, using a pedal and suitably blending the two wavelengths available. The laser beam can be directed onto the organ to be operated on using an endoscope. In this way, the surgeon can easily perform very precise as well as accurate procedures and operate on parts of the body that could previously only be reached with traditional open surgery.



[Courtesy of Prof. G. Sgroi, MD - Director of Surgical Oncology Treviglio Hospital, Bergamo - Italy]

(left) Right hepatectomy due to the presence of multiple metastases from colon adenocarcinoma, performed by using the MultiPulse Tm+1470. The technique results in excellent hemostasis, limited thermal tissue damage (as shown in picture right) and the closure of the bile ducts.

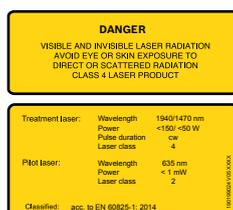
Laparoscopic-assisted resection of an adenocarcinoma of the rectum, performed by using the MultiPulse Tm+1470. The applied technique used resulted in excellent hemostasis, limited thermal damage, reduced tissue carbonization and provides remarkable ease in the research for surgical plans.



[Courtesy of Prof. G. Sgroi, M.D. - Director of Surgical Oncology Treviglio Hospital, Bergamo - Italy]

# TECHNICAL SPECIFICATIONS

MultiPulse Tm+1470	
Laser Source	Thulium + Raman module
Wavelength	1,940 nm + 1,470 nm (simultaneously, in the same fiber)
Emission Mode	Continuous Wave (CW) - Pulsed Wave (pw)
Power	Up to 120 W (@ 1,940 nm) Up to 30 W (@ 1,470 nm)
Repetition Rate	CW to 1,000 Hz
Pulse Duration	0.5 ms until CW
Operating Temperatur Range	20° - 30° C
Rel. Humidity	Max. 70 % (no condensation)
Cooling	Internal active water cooling
Beam Delivery	Wide Range of Flexible Optical Fiber
Aiming Beam	Laser Diode @ 635 nm <1 mW, adjustable
Device Accessories	Fiber handpieces and diverse cannulas Bare fibers (reusable and single use) available in following diameters: 200, 400, 600, 800, 1000 µm.
Electrical Requirements	230 VAC - 50/60 Hz - 2,700 VA - 16 A
Dimensions and Weight	112 (H) x 87 (D) x 36.5 (W) cm - 125 kg



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All specifications are  
subject to change without notice.  
JenaSurgical is the brand of the surgical business  
unit of Asclepion Laser Technologies.



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