

EFFICIENT INVESTMENT

How to Make Innovative Surgical Energy Systems Affordable



INCREASE SURGICAL CASELOAD THROUGH INCREASED INTRAOPERATIVE FLEXIBILITY

Today more than ever, hospitals have to face a competitive landscape in health care. In order to improve medical services to a high level, they must continually integrate the latest knowledge and technologies into their services, while keeping expenditures low.

Medical suppliers, particularly those offering products of a superior technological quality, therefore need to be able to clearly contribute toward cost savings and procedure optimization to be attractive to both clinical users and the financial management at the same time.

Olympus is committed to developing technologies such as the first fully integrated surgical energy system, of which the THUNDERBEAT system is a key part.

The complete energy solution product portfolio offered by Olympus can meet almost every surgical need using just one energy system.

The Olympus Surgical Energy Platform

- Shortens operating times and therefore may improve patient outcome
- Saves costs on consumable goods
- Offers one solution for all surgical needs
- Standardizes clinical procedure across all surgical departments
- Improves and simplifies surgical procedures
- Enhances performance in the operating room

Free Trial: Measure the Savings

Olympus has developed a calculation model to highlight which savings can be realized by using the THUNDERBEAT system. Together with the hospital management, we will support the analysis of savings that result from conducting the hospital's procedures with THUNDERBEAT. This will provide you with a definitive figure showing the costs saved compared to the current system, taking purchase costs into account. We will be able to show how a hospital can leverage THUNDERBEAT and other Olympus surgical energy products to reduce costs per procedure, while maintaining or even increasing the quality of its health care services.

With this free trial, there is no risk of increased costs for the hospital compared to their currently used system, even if the results do not demonstrate cost savings. For more information on trialing Olympus surgical energy solutions, please contact your local Olympus Representative.



“ THUNDERBEAT does all the dissecting and sealing of major vessels. Instrument exchanges are no longer required. THUNDERBEAT is very fast and safe, and there is less mist compared to Harmonic. ”

Peiman Poornoroozy, MD

Head Surgeon, Department for Gastrointestinal Surgery, Odense University Hospital
Odense, Denmark, May 2014

ONE SURGICAL ENERGY PLATFORM FOR ALL SURGICAL TEAMS

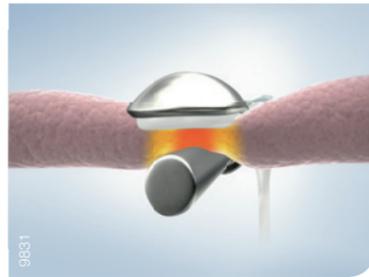
In the past, most hospitals needed at least two surgical energy platforms with different instruments in each operating room. Today, Olympus provides a unique surgical energy system: One single generator platform allows the combination of all common kinds of energy, for example advanced bipolar and ultrasonic energy, which are needed for a multitude of electrosurgical procedures such as gastrointestinal, gynecological, or urological surgery. The Olympus energy system can meet almost all surgical energy needs.

Based on this platform, Olympus' THUNDERBEAT is the first highly versatile instrument to integrate two well-established forms of energy and their advantages: Ultrasonic energy, which is widely used for its fast tissue cutting and dissecting capability, and advanced bipolar energy, which enables vessels to be sealed quickly and securely. The THUNDERBEAT instrument tip is designed with minimally invasive surgery in mind. It enables the surgeon to grasp, manipulate, and bluntly dissect tissue without having to switch instruments each time.

The result is improved versatility during surgical procedures – just one of many advantages of standardization (see pages 6/7).

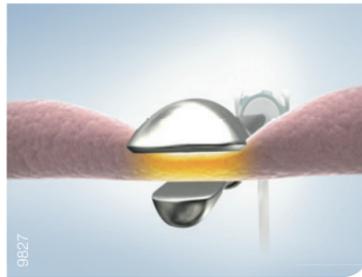
The THUNDERBEAT Difference

Ultrasonic Energy Only



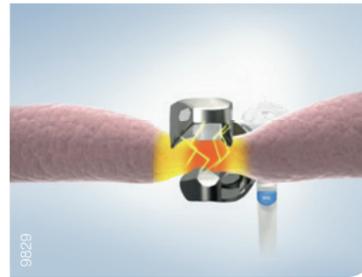
Rapid tissue cutting

Bipolar Energy Only



Reliable vessel sealing

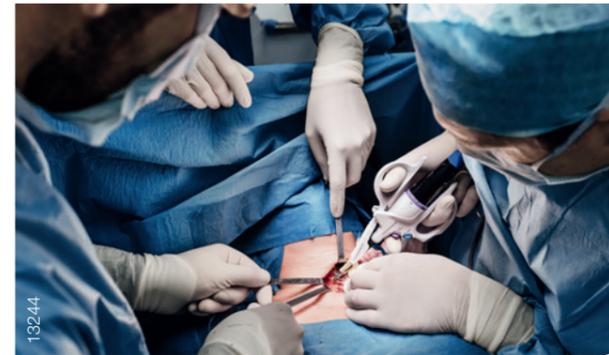
THUNDERBEAT



Rapid tissue cutting **AND** reliable vessel sealing

One Energy Platform for All Open or Laparoscopic Surgeries

- Thyroid surgery
- Upper GI surgery
- Bariatric surgery
- Breast surgery
- Lower GI surgery
- Pelvic surgery
- Upper or lower urinary system surgery



“ I prefer THUNDERBEAT as my standard device in colorectal surgery because the combined technologies allow for precise dissection and safe and quick vessel sealing. I use THUNDERBEAT as it is safe, easy to use, and fast. ”

Andreas Keerl, MD

Leading Physician, Department for Surgery, Kantonsspital Baden
Baden, Switzerland, May 2014

SAFER AND IMPROVED SURGICAL WORKFLOW THROUGH STANDARDIZED EQUIPMENT

When it comes to the benefits of electrosurgical energy systems, clinicians like the versatility of THUNDERBEAT and the resulting reduction in instrument changes. Nurses very much like the standardization and as a result the simplified handling of the energy platform, while procurement managers appreciate the cost savings THUNDERBEAT offers (when introducing new technologies).

Unlike a combination of several standalone systems, a fully integrated energy system not only significantly reduces training times for physicians and medical professionals, but also optimizes and standardizes the entire process and leads to shorter operating times, as demonstrated by THUNDERBEAT.

Every time an instrument is exchanged, surgical momentum is decreased, resulting in increased surgical times. Instrument exchanges usually occur when different surgical tasks need to be performed. THUNDERBEAT is primarily a device to achieve tissue cutting and hemostasis using established ultrasonic and advanced bipolar energy. However, the innovative tip design allows it to be used as a laparoscopic grasper and as a blunt and sharp dissector, without the application of energy. The result is an instrument that during routine use can replace many other commonly used instruments and consumables. This helps the surgeon to concentrate on the surgical task at hand and reduces distractions.

In other words: Standardizing procedures leads to savings. Please turn the page for more details.

Benefits of Olympus Energy Platform Solution

For Medical Staff

- Suitable for all surgical fields
- Simplifies handling
- Improves versatility
- Reduces instrument changes
- Reduces overtime
- Reduces training times

For Purchasers

- Potentially reduces operating times
- Increased operating room efficiency
- One supplier allows quick service through reduced contact points to vendors
- Potential cost savings, by reducing the need for additional consumables such as disposable laparoscopic instruments or hemostatic clips

For Patients

- Potentially shortens operating times, which has the potential to positively impact patient outcome and comfort



“ We have started a study to assess the possible advantages of THUNDERBEAT with objective measurements. From the data, we can state that THUNDERBEAT is safe and fast, which gives us an advantage in the OR with a decrease in time of at least 15%. The time savings are the result of dependable coagulating and quick cutting action through any tissue without having to change instruments – even for blunt dissection and grasping.”

Prof. Karl-Hermann Fuchs, MD

Medical Director, Head Surgeon, Department for General, Visceral, Thoracic Surgery, Agaplesion Markus Krankenhaus, Frankfurt am Main, Germany, May 2014

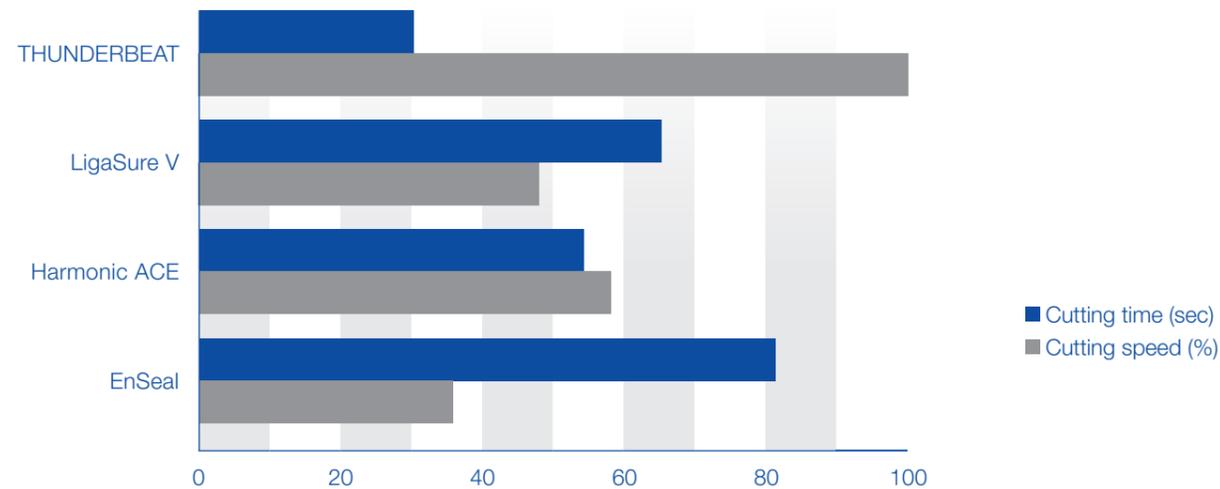
SAVING COSTS WITH THUNDERBEAT – THE CHAIN OF EVIDENCE

A set of clinical evidence suggests the use of THUNDERBEAT may contribute to reducing surgical site infection events and related costs owing to its fast cutting speed. But how does the fast cutting speed have an impact on surgical site infections?

1 Technical Benefit → Speed of Cut/Dissection

THUNDERBEAT showed faster dissection speed in animal study¹

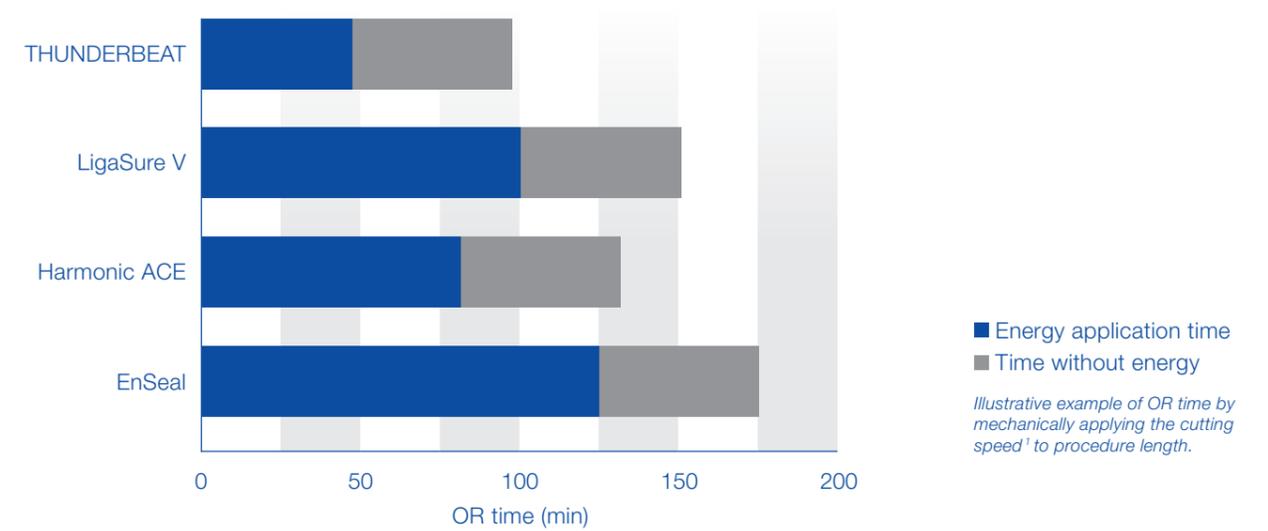
Device	Cutting Time (sec)	Cutting Speed (vs. TB)
THUNDERBEAT	31.1	100%
Ligasure	65	48% (31.1/65)
Harmonic	54.5	57% (31.1/54.5)
Enseal	82	38% (31.1/82)



2 Efficiency Outcome → OR Time Reduction

The OR time may be reduced as the energy application time should be improved by a fast-cutting device, e.g. in colorectal surgery². This has previously been suggested in gynecological procedures.³

Total Procedure Time	Energy Device Application Time	Time without Energy Device
163 min	80.6 min	82.4 min
100%	49,4%	50,6%



SAVING COSTS WITH THUNDERBEAT – THE CHAIN OF EVIDENCE

3

Clinical Benefit → **Potential Reduction of SSI**

The correlation between OR time and SSI has been reported⁴

Surgical site infection (SSI) is a common complication in patients who undergo colorectal surgery. A retrospective study based on multicenter databases reported that one of the most important procedure-related risk factors was operation time. The study prospectively identified 4,488 patients who underwent laparoscopic colorectal surgery between 1995 and 2008; of these, 2,571 patients who underwent sigmoid resection for benign disease were included. The association between operation time and the risk of SSI seemed to be linear. A recent publication from WHO on SSI also reported the association with OR time.⁷

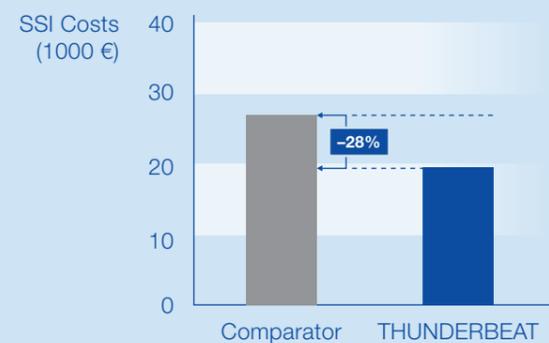
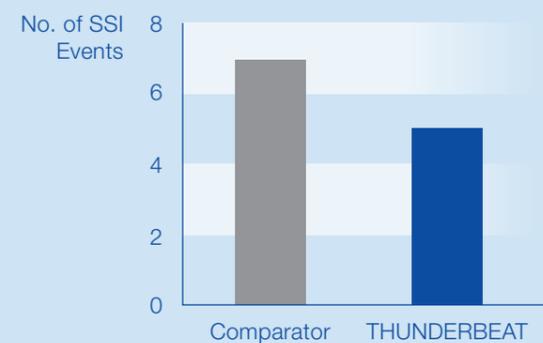
	OR Time (min)	SSI (%)
OR Time 1	180	4.3
OR Time 2	120	3.1

-28%

Potential Savings

This calculation example is based on the case above.

Number of SSI Events		Cost of SSI Events (€)	
Comparator	6.45	Comparator	27,186
THUNDERBEAT	4.65	THUNDERBEAT	19,599



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Efficiency Benefit → **Reduction of Cost/Burden**

Hospital incurs additional cost to treat SSI events^{5,6}

France

Additional length of hospital stay and additional costs associated with surgical site infection (SSI) following surgery for public and private hospitals in France

Colon and Rectal Surgery		
Additional Length of Hospital Stay (Days)	Additional Cost (€)	Additional Cost per Procedure Resulting in SSI* (€)
Public Hospitals		
4,851	1,363,131	4,215
Private Hospitals		
2,319	375,678	2,430

* SSI, surgical site infection

United Kingdom

Additional attributable cost^a due to surgical site infection (SSI) by surgical category

Large Bowel				
Total Cost Attributable to SSIs	No. of SSIs	Median Cost (95% CI)		Median Cost Attributable to SSI (95% CI)
		Non-SSI	SSI	
£328,860	53	£6,770 (6328–7031)	£12,951 (9790–14508) ^b	£4,928 (4020–7503)

^acost aggregated for original admission and linked readmissions
^bp<0.05

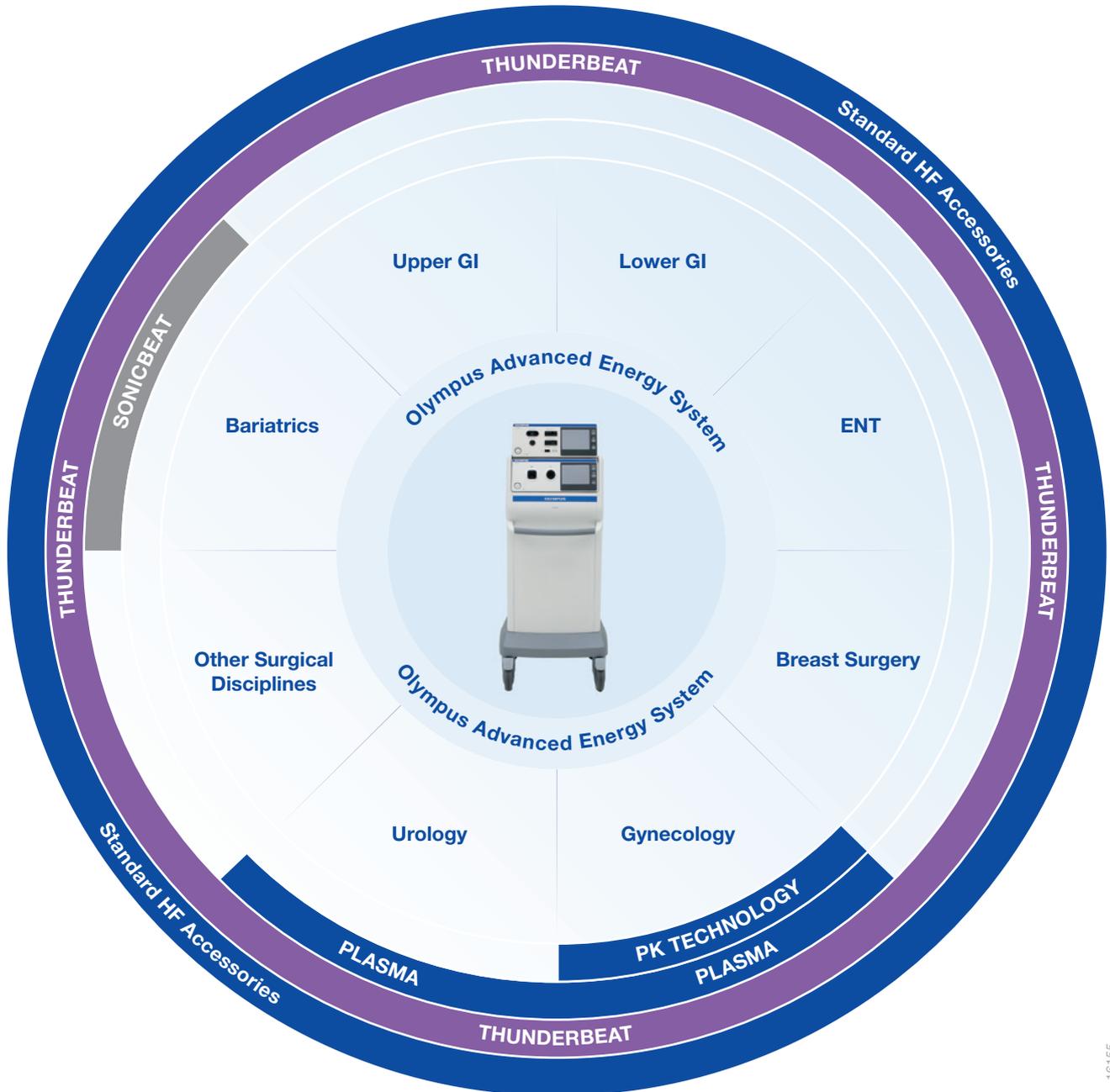
EFFICIENT INVESTMENT

The Olympus Energy System

One system that covers different medical specialties and technologies for **open, laparoscopic, and endoscopic surgery.**

Technologies

- Unique Hybrid Technology (combination of ultrasound and advanced bipolar)
- HF Technology (monopolar, bipolar, advanced bipolar)
- Ultrasound Technology



References

- ¹Milson et al. J Laparoendosc Adv Surg Tech A. 2012 May;22(4):378–86
- ²Milson et al. Surg Endosc. 2015 May;29(5):1161–6
- ³Fagotti et al. J Minim Invasive Gynecol. 2014 May–Jun;21(3):447–53
- ⁴Kurmann et al. Surg Endosc. 2011 Nov;25(11):3531–44

- ⁵Lamarsalle et al. Epidemiol. Infect. (2013), 141, 2473–2482

- ⁶Jenks et al. J Hosp Infect. 2014 Jan;86(1):24–33

- ⁷World Health Organization. Global guidelines on the prevention of surgical site infection. 3 Nov 2016 (<http://www.who.int/gpsc/ssi-guidelines/en/>)

Specifications, design, and accessories are subject to change without any notice or obligation on the part of the manufacturer.

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