



YOU
SPECIALIZE
IN THORACIC
SURGERY.
SO DO WE.

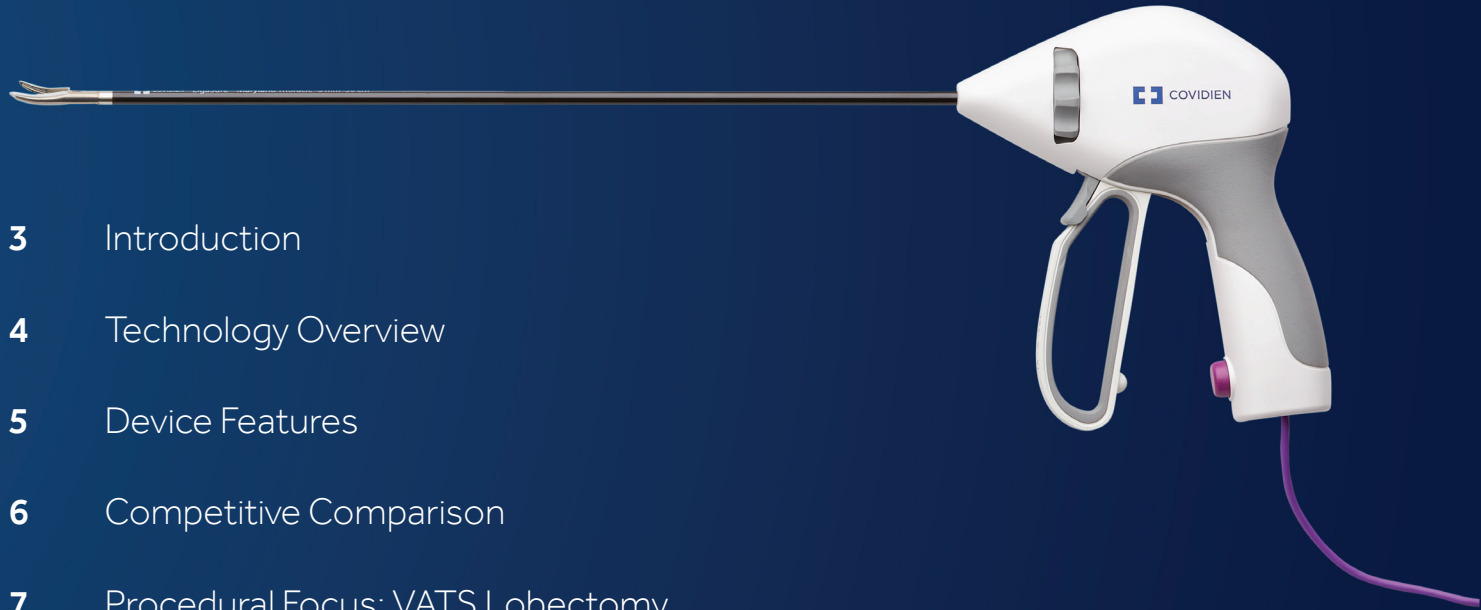
Introducing a multifunctional bipolar
vessel sealer designed specifically
for thoracic procedures¹⁻⁵

LigaSure™ Maryland Jaw
Thoracic Sealer/Divider



Medtronic
Further, Together

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FEEL SECURE
KNOWING
YOUR DEVICE
**IS INDICATED
FOR SEALING
PULMONARY
ARTERIES
AND VEINS.⁶**

We're working hard to transform lung health — from identifying patients earlier to optimizing treatment to accelerating recovery. It's why we're committed to offering a comprehensive suite of technologies tailored for thoracic surgery.

Introducing the first — and only — minimally-invasive LigaSure™ device specifically indicated for sealing pulmonary veins and arteries up to and including 7 millimeters.^{7,†}

The LigaSure™ Maryland jaw thoracic device.

It's an exciting addition to our Valleylab™ energy family — and it's part of our commitment to advancing care in the thoracic space.



[†]As of March 23, 2018, based on indications for use for laparoscopic LigaSure™ devices.

ENHANCED BLUNT DISSECTION. RELIABLE VESSEL SEALING.⁶ EFFICIENCY IN THE OR.^{8,†}

One instrument. Four functions.

The LigaSure™ Maryland jaw thoracic device delivers all the clinical benefits of LigaSure™ technology — in a design made for thoracoscopic and VATS procedures.^{1–5}

With the LigaSure™ thoracic device you get intuitive control^{9,10,‡} and the functionality of:

- A one-step vessel sealer⁶
- A Maryland dissector for enhanced blunt dissection^{9,10,§}
- An atraumatic grasper to securely grasp tissue^{9,10,Ω}
- Cold scissors to leave the critical decision to cut in your hands^{6,9}



100%

of surgeons surveyed agreed:
The LigaSure™ Maryland
device provides efficiency
throughout the procedure.^{9,11,††}

Proven technology, proven reliability

While the LigaSure™ Maryland jaw thoracic device is a recent advancement, the technology that powers it has been tested in more than 25 million procedures.^{12,‡‡}

LigaSure™ vessel-sealing technology works by using the body's own collagen and elastin to create a permanent seal that can withstand three times normal pulmonary systolic blood pressure.^{3,13} With the LigaSure™ thoracic device you can seal:

- **Pulmonary vasculature and systemic vessels** up to and including 7 mm^{1–5}
- Lymphatics
- Tissue bundles

LigaSure™ technology also eliminates the guesswork — and minimizes thermal spread^{9,14,§§} — by automatically discontinuing energy delivery when the seal cycle is complete.¹⁵

† 19 of 21 surgeons surveyed after use agreed.

‡ 31 of 33 surgeons surveyed after use agreed when compared to the surgeon's primary device.

§ 23 of 32 surveyed after use agreed when compared to surgeon's primary device.

Ω 33 of 33 surgeons surveyed after use agreed.

†† 32 of 32 surgeons surveyed after use agreed.

‡‡ Based on global data from FY01 through FY17.

§§ Based on systemic vasculature. Compared to Olympus Thunderbeat™.



DESIGNED FOR THORACIC SURGERY

Introduce the benefits of
LigaSure™ technology to
your thoracic procedures



Maryland-style jaw with:

- Specifications optimized for sealing pulmonary vessels¹⁻⁵
- A proprietary nano-coating to reduce sticking,^{9,16,†} eschar buildup,^{7,16,‡} and cleanings^{9,17} compared to devices without nano-coating⁵
- A curved profile to improve access,^{9,11,Ω,††} tip visualization,^{7,10,‡‡} and to allow for easy skeletonization of vessels^{9,11,‡‡}

Handle design and activation button to allow for minimal steps when sealing and dividing^{9,11,\$§}

Confidence, control, and efficiency

The LigaSure™ Maryland jaw thoracic device is powered by the Valleylab™ FT10 energy platform, which:

- Makes LigaSure™ devices better — and faster — than ever^{15,†}
- Reads tissue 434,000 times per second — and automatically adjusts energy output to maintain the desired clinical effect¹⁸

†Compared to legacy LigaSure™ device. Tissue sticking to device jaws instances measured over 110 seals per device (ForceTriad™ energy platform). LF1930T is only compatible with the Valleylab™ FT10 energy platform. ‡Eschar buildup assessed using optical imaging analysis after 60 seal and divide cycles. §Cleaning effectiveness assessed after each of two cleaning cycles. Ω31 of 33 surgeons surveyed after use agreed. †† Compared to straight jaws. ‡‡30 of 33 surgeons surveyed after use agreed. §§29 of 32 surgeons surveyed after use agreed.



COVDIEN LigaSure Maryland Thoracic 5mm-30cm



COOLER THAN THE COMPETITION. WITH FEWER CLEANINGS.

The LigaSure™ Maryland jaw thoracic device is the only minimally invasive advanced energy LigaSure™ device specifically indicated for sealing pulmonary veins and arteries.^{7,†} It outperforms other devices in key areas.[‡]

COOLER JAW TEMPERATURE^{9,19,§}

222 C

Harmonic™ HD 1000i after a single activation

64 C

LigaSure™ Maryland jaw thoracic device after a single activation



FASTER COOLDOWN^{9,19,Ω} TO 60 C



LigaSure™ Maryland jaw thoracic device



Harmonic™ HD 1000i

NANO-COATED ENABLES GREATER EFFICIENCY



The LigaSure™ Maryland jaw thoracic device has our proprietary nano-coating on the jaws. That means less eschar buildup^{9,17,††,‡‡} and fewer cleanings can enable greater procedural efficiency^{9,17,§§} Plus, the nano-coated LigaSure™ Maryland jaw thoracic device:

- Reduces sticking by 97% compared to the Ethicon™ EnSeal™ G2 device^{9,16,ΩΩ}
- Reduces sticking by 97% compared to the Voyant™ 5 mm Fusion device^{9,16,ΩΩ}

‡‡Compared to legacy, noncoated device. §§Cleaning effectiveness assessed after each of two cleaning cycles. ΩΩTissue sticking to device jaws instances measured over 110 seals per device (ForceTriad™ energy platform). LF1930T is only compatible with the Valleylab™ FT10 energy platform.

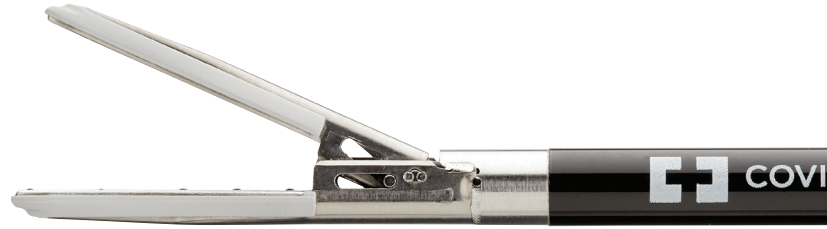
LESS THERMAL SPREAD

The LigaSure™ Maryland jaw thoracic device produces significantly less thermal spread^{9,14,‡} than the Olympus Thunderbeat™.

†As of March 23, 2018, based on indications for use for laparoscopic LigaSure™ devices. ‡Seals performed on systemic vasculature. §§Single activation. Harmonic™ HD 1000i was measured while using advanced hemostasis. All seals were performed on systemic vasculature. ΩBased on systemic vasculature. ††Eschar buildup assessed using optical imaging analysis after 60 seal and divide cycles.

PROCEDURAL FOCUS: VATS LOBECTOMY

The LigaSure™ thoracic device is engineered to help you overcome challenges in video-assisted thoracoscopic surgeries (VATS)



THROUGHOUT THE PROCEDURE

Procedural Step	LigaSure™ Thoracic Device Benefits	Clinical Literature
Mediastinal lymph node dissection	<p>The jaw delivers improved access,^{9,11,†‡} tip visualization,^{9,11,§} and blunt dissection.^{9,10,Ω}</p> <p>These features address concerns about dissecting around recurrent laryngeal nerve and lymph nodes without causing damage.</p>	<p>"[Compared to an electro-surgical pencil,] the LigaSure™ device was associated to significant reduction of duration of both the mediastinal nodal dissection and the cumulative chest tube drainage." –Martucci N, et al.²⁰</p>

LUNG MOBILIZATION

Procedural Step	LigaSure™ Thoracic Device Benefits	Clinical Literature
Step 1 Lysis of adhesions and transection of the pulmonary ligament	<p>The multifunctionality of the device provides an efficient,^{9,11,††} versatile, hemostatic solution without opening an extra device.</p>	<p>"Although monopolar energy is widely used in thoracoscopic lung resections, bipolar energy has been shown to have better hemostatic potential with minimal thermal spread." –Fikfak V, et al.²¹</p>
Step 2 Dissection of the hilum to expose critical structures	<p>The jaw shape of the LigaSure™ thoracic device delivers reliable vessel sealing with improved access,^{9,11,†‡} tip visualization,^{9,11,§} and blunt dissection.^{9,10,Ω}</p>	<p>"We believe that the short blunt curved tip facilitates hilar dissection of both simple and complex hilum and allowing for coagulation of tiny hilar vessels, which results in safe and efficient surgery." –Fikfak V, et al.²¹</p>




DIVISION OF CRITICAL STRUCTURES

Procedural Step	LigaSure™ Thoracic Device Benefits	Clinical Literature
Step 3 Ligation and division of pulmonary arteries and veins	<ul style="list-style-type: none"> Specifically designed for VATS procedures and pulmonary vasculature Improved access^{9,11,†} and visibility^{9,11,§} Reliable hemostasis Effective blunt dissection^{9,10,Ω} Multifunctionality may reduce instrument exchanges^{9,11,††} and procedure time^{22,‡‡} 	<p>"During lung resection, pulmonary arteries and veins that are up to 5 and 7 mm in diameter, respectively, can be simply and safely sealed using energy vessel sealing system without reinforcement. Energy sealing has potential advantages to confer simpler vascular treatment, which could reduce intraoperative stress for surgeons." –Okada M, et al.²²</p>

†31 of 33 surgeons surveyed after use agreed. ‡Compared to surgeons' primary device. §30 of 33 surgeons surveyed after use agreed. Ω23 of 32 surgeons surveyed after use agreed when compared to surgeon's primary device. Ω23 of 32 surgeons surveyed after use agreed. ††20 of 32 surgeons surveyed after use agreed. ††19 of 21 thoracic surgeons surveyed after use agreed when compared to their currently preferred method.

A COMPLETE VATS LOBECTOMY SOLUTION

We offer comprehensive lung care solutions. Here is an example of how our technologies can make an impact on VATS lobectomies.

THROUGHOUT THE PROCEDURE	LUNG MOBILIZATION			DIVISION OF CRITICAL STRUCTURES	
Mediastinal lymph node dissection	Step 1: Lysis of adhesions	Step 2: Dissect hilum	Step 3: Ligate and divide pulmonary vessels	Step 4: Divide bronchus	Step 5: Complete the fissure
 <p>LigaSure™ Maryland Jaw Thoracic Device</p>					
			 <p>Tri-Staple™ 2.0 Specialty Reloads</p>		
			 <p>Signia™ Small Diameter Reloads</p>		



PRODUCT REQUEST FORM

I'm requesting the LigaSure™ Maryland jaw thoracic sealer/divider (LF1930T) for our facility so that I have consistent access to it for my thoracic cases.

The first — and only

The LigaSure™ Maryland jaw thoracic device is the only minimally invasive advanced energy LigaSure™ device specifically indicated for the sealing of pulmonary veins and arteries up to and including 7 mm.^{1,†}

Multifunctional flexibility

The LigaSure™ Maryland jaw thoracic device delivers the reliable performance of LigaSure™ vessel-sealing technology. Plus, it:

- Is designed specifically for thoracoscopic/VATS/open procedures and pulmonary vasculature¹⁻⁵
- Uses a proprietary nano-coating on the jaws to reduce sticking, eschar buildup, and cleanings^{1,‡}
- May reduce instrument exchanges^{6,8,§} and procedure time^{8,Ω}
- Securely and atraumatically grasps tissue^{6,9,††}
- Provides enhanced blunt dissection^{9,10,‡‡}
- Allows for cutting independent of sealing^{6,10}

I'm confident in using a technology that has been used in more than 25 million cases¹² and is backed by a significant body of evidence-based research.

Thank you for reviewing this information. Please feel free to contact me if you have any questions.

Sincerely,

Additional comments:

†As of March 23, 2018, based on indications for use for laparoscopic LigaSure™ devices. ‡Compared to legacy, noncoated devices. §20 of 32 surgeons surveyed after use agreed. Ω19 of 21 thoracic surgeons surveyed after using agreed when compared to their currently preferred method. ††33 of 33 surgeons surveyed after use agreed. ‡‡23 of 32 surveyed after use agreed when compared to surgeon's primary device. 1. Based on internal report #RE00147462, Pulmonary sealing claims for the LigaSure™ LF1930T device (memo), March 9, 2018. 2. Based on internal report #RE00138840, LIG-45 memo, device length recommendation, thoracic (LF1930T), Feb. 6, 2018. 3. Based on internal test report #RE00125866, Jaw force and gap range burst pressure evaluation of EB4 thoracic Maryland device (LF1930T); conducted on bovine tissue, Nov. 20-21, 2017 and Nov. 27-30, 2017. 4. Based on internal test report #RE00134865, Burst pressure verification of pulmonary bovine veins using the LigaSure™ LF1930T device, Jan. 17-18, 2018. 5. Based on internal test report #RE00122515, Verification of the LigaSure™ LF1930T device in a GLP chronic hemostasis canine study on pulmonary vasculature, Jan. 8-10, 2018. 6. Based on internal test report #RE00140529 rev A, LigaSure™ Maryland device, nano-coated (LF19XX) tissue testing (memo), Mar. 5, 2018. 7. Based on internal test report #RE00071598, Maryland validation labs, Houston and Los Angeles: independent surgeon feedback collected during porcine labs, April 16-18 and April 30-May 3, 2013. 8. Based on internal test report #RE00100005, Marketing validation of LF1930T; LigaSure™ Maryland jaw thoracic vessel sealer/divider, Houston and Lexington, MA; independent surgeon feedback collected during porcine labs, Jan. 17-18 and Jan. 23-24, 2018. 9. Based on internal test report #R0035742, Maryland validation, Houston and Los Angeles: independent surgeon feedback collected during porcine labs, April 16-18 and April 30-May 3, 2013. 10. LigaSure™ Maryland jaw Sealer/Divider Nano-coated [instructions for use], Boulder, CO: Medtronic; 2016. 11. Based on internal report #US161132(1), Sales data from FY01 to FY17. July 2017.



TRANSFORM YOUR THORACIC PROCEDURES WITH ADVANCED ENERGY.

Contact your sales representative for more information about the first — and only — minimally invasive LigaSure™ device specifically indicated for pulmonary vessels^{1,†}

Ordering information LF1930T, six per case

†As of March 23, 2018, based on indications for use for laparoscopic LigaSure™ devices.

1. Based on internal report #RE00138840, LIG-45 memo, device length recommendation, thoracic (LF1930T). Feb. 6, 2018.
2. Based on internal test report #RE00125866, Jaw force and gap range burst pressure evaluation of EB4 thoracic Maryland device (LF1930T); conducted on bovine tissue. Nov. 20–21, 2017 and Nov. 27–30, 2017.
3. Based on internal test report #RE00134865, Burst pressure verification of pulmonary bovine veins using the LigaSure™ LF1930T device. Jan. 17–18, 2018.
4. Based on internal test report #RE00122515, Verification of the LigaSure™ LF1930T device in a GLP chronic hemostasis canine study on pulmonary vasculature. Jan. 8–10, 2018.
5. Based on internal test report #RE00128442, GLP acute pulmonary vasculature hemostasis verification study of the LigaSure™ LF1930T device in hounds. Dec. 8, 2017.
6. LigaSure™ Maryland Jaw Sealer/Divider, Nano-Coated [instructions for use]. Boulder, CO: Medtronic; 2016
7. Based on internal report #RE00147462, Pulmonary sealing claims for the LigaSure™ LF1930T device (memo). March 29, 2018.
8. Based on internal test report #RE00100005, Marketing validation of LF1930T: LigaSure™ Maryland jaw thoracic vessel sealer/divider, Houston and Lexington, MA; independent surgeon feedback collected during porcine labs. Jan. 17–18 and Jan. 23–24, 2018.
9. Based on internal test report #RE00140529 rev A, LigaSure™ Maryland device, nano-coated (LF19XX) tissue testing (memo). March 5, 2018.
10. Based on internal test report #R0035742, Maryland validation, Houston and Los Angeles; independent surgeon feedback collected during porcine labs. April 16–18 and April 30–May 3, 2013.
11. Based on internal test report #RE00071598, Maryland validation labs, Houston and Los Angeles; independent surgeon feedback collected during porcine labs. April 16–18 and April 30–May 3, 2013.
12. Based on internal sales data from FY01–FY20. October 2019.
13. Based on internal test report #R0064457, LigaSure™ device renal bench burst pressure evaluation of the Valleylab™ FT10 energy platform. May 3, 2015.
14. Based on internal report # R0047634_A, Comparison of various competitor devices versus the Sonicision™ device and LigaSure™ LF1637 and LF1737 devices; acute porcine study. Nov. 11 and 18, 2013, and Dec. 9, 2013.
15. Based on internal test report #RE00025819 rev A, LigaSure™ device data sources for VLFT10 white papers. September 2015.
16. Based on internal test report #RE00073194, Tissue sticking comparison of the Ethicon G2™*, Voyant™* 5 mm Fusion, LigaSure™ LF1737, and LigaSure™ LF1937 devices conducted on porcine tissue using the ForceTriad™ energy platform. Jan. 18, 2017.
17. Based on internal test report #RE00071599, LF19XX MJC marketing claims testing conducted on porcine tissue, Feb. 7–22, 2017.
18. Valleylab™ FT10 energy platform [service manual]. Boulder, CO: Medtronic; January 2015 (rev).
19. Based on internal test report #R0032385 rev A, Thermal profile comparison of Ethicon Harmonic™* HD1000i shears versus nano-coated LigaSure™ Maryland jaw device on the Valleylab™ FT10 energy platform. May 17–18, 2017 and June 14, 2017.
20. Martucci N, Tracey M, La Rocca A, La Manna C, De Luca G, Rocco G. A pilot prospective randomized, controlled trial comparing LigaSure™ tissue fusion technology with the ForceTriad™ energy platform to the electrosurgical pencil on rates of atrial fibrillation after pulmonary lobectomy and mediastinal lymphadenectomy. *Eur J Cardiothorac Surg.* 2015;47:e13–e18.
21. Fikfak V, Gaur P, Chan EY, Kim MP. Case report of using curved tip electrothermal bipolar coagulation to improve hilar dissection in VATS lobectomy. *Int J Surg Case Rep.* 2016;23:85–88.
22. Okada M, Miyata Y, Takamochi K, Tsutani Y, Oh S, Suzuki K. Prospective feasibility study of sealing pulmonary vessels with energy in lung surgery. *J Thorac Cardiovasc Sur.* 2018.