LigaSure™ Maryland jaw thoracic sealer/divider

Optimized for thoracic surgery.[1–5]

Introducing a multifunctional bipolar vessel sealer designed specifically for thoracic procedures[1–5]

Medtronic
Engineering the extraordinary

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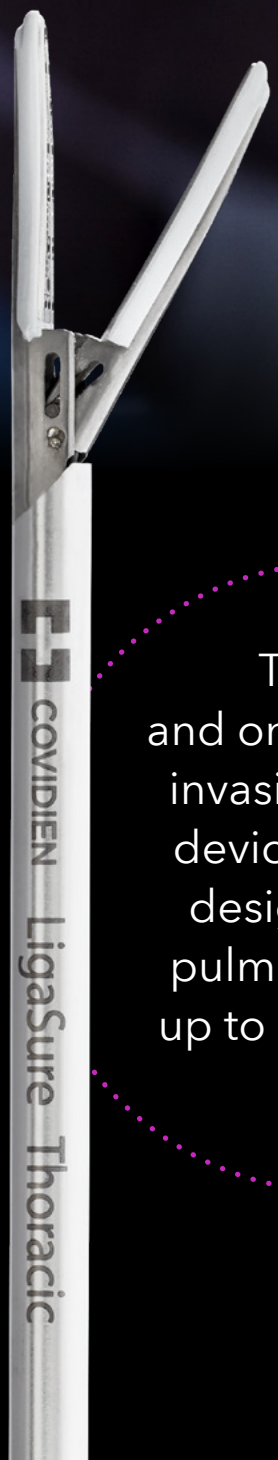
Advancing thoracic care.

One vessel at a time.

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

The LigaSure™ Maryland jaw thoracic device



The first – and only – minimally invasive LigaSure™ device specifically designed to seal pulmonary vessels up to and including 7 mm.[†,6]

† As of March 10, 2024, based on indications for use for laparoscopic LigaSure™ devices.

Efficiency during thoracic procedures.[†,7,8]

Four instruments. One device.

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]

You get intuitive control[‡,7,8] and the functionality of five instruments, including:

- A one-step vessel sealer[7,9]
- A Maryland dissector for enhanced blunt dissection[§,7,8]
- An atraumatic grasper to securely grasp tissue[◊,7,8]
- Cold scissors to leave the critical decision to cut in your hands[7,9]

100%

of surgeons surveyed agreed:

The LigaSure™ Maryland device provides efficiency throughout the procedure.[¶,7,10]

Trusted technology, proven reliability

LigaSure™ vessel-sealing technology has been tested in more than 35 million procedures.[#,11]

It works by using the body's own collagen and elastin to create a seal that can withstand three times normal pulmonary systolic blood pressure.[Δ,12] With the LigaSure™ thoracic device you can seal:

- Pulmonary vasculature up to and including 7 mm[∞,6]
- Lymphatics
- Tissue bundles

LigaSure™ technology also eliminates the guesswork – and minimizes thermal spread[††,7,13] – by automatically discontinuing energy delivery when the seal cycle is complete.[14]

† 32 of 32 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.

◊ 33 of 33 surgeons surveyed after use agreed.

¶ 32 of 32 surgeons surveyed after use agreed.

Based on internal sales data from FY01-FY23. November 2023.

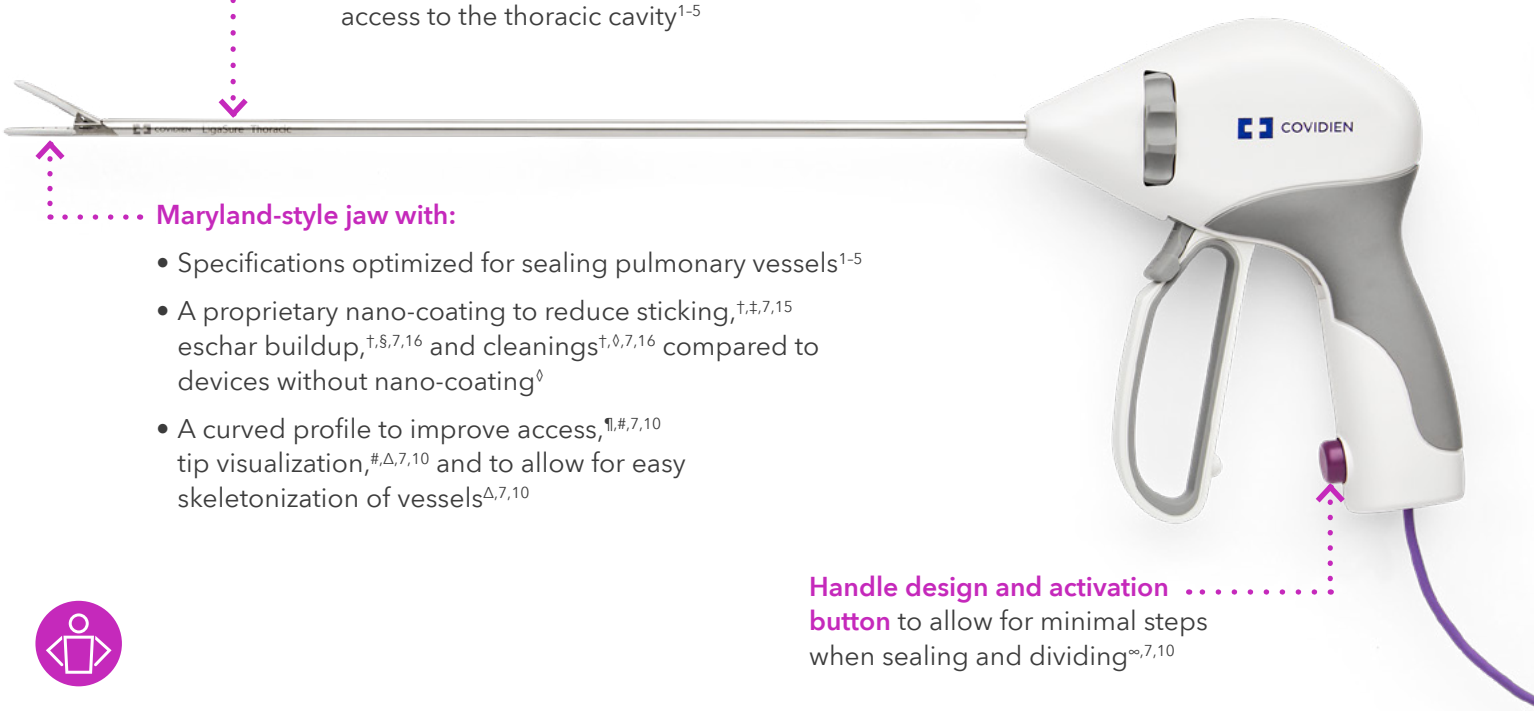
Δ Bench testing model used to statistically evaluate burst pressure of renal arteries. Evidence: Testing performed on fresh porcine kidneys, using LigaSure devices: LF1212A (p=0.2898); LF1637 (p=0.6352); LF4318 (p=0.8961); and LS1037 (p=0.9528).

∞As of March 10, 2024, based on indications for use for laparoscopic LigaSure™ devices.

††Testing performed using porcine model. Tissue types included isolated vasculature and A/V bundles, root of the mesentery, mesentery, mesometrium, isolated/bundle vasculature, lumphatic ducts, omentum. Using LigaSure devices: LF1212A, LF1637, LF4318 and LS1037.

Harness the benefits of advanced energy.

30 cm shaft designed specifically for access to the thoracic cavity[1-5]



Maryland-style jaw with:

- Specifications optimized for sealing pulmonary vessels[1-5]
- A proprietary nano-coating to reduce sticking,[†,‡,7,15] eschar buildup,[†,§,7,16] and cleanings[†,◊,7,16] compared to devices without nano-coating[◊]
- A curved profile to improve access,[¶,#,7,10] tip visualization,[#,Δ,7,10] and to allow for easy skeletonization of vessels[Δ,7,10]

Handle design and activation button to allow for minimal steps when sealing and dividing[∞,7,10]

Confidence, control, and efficiency

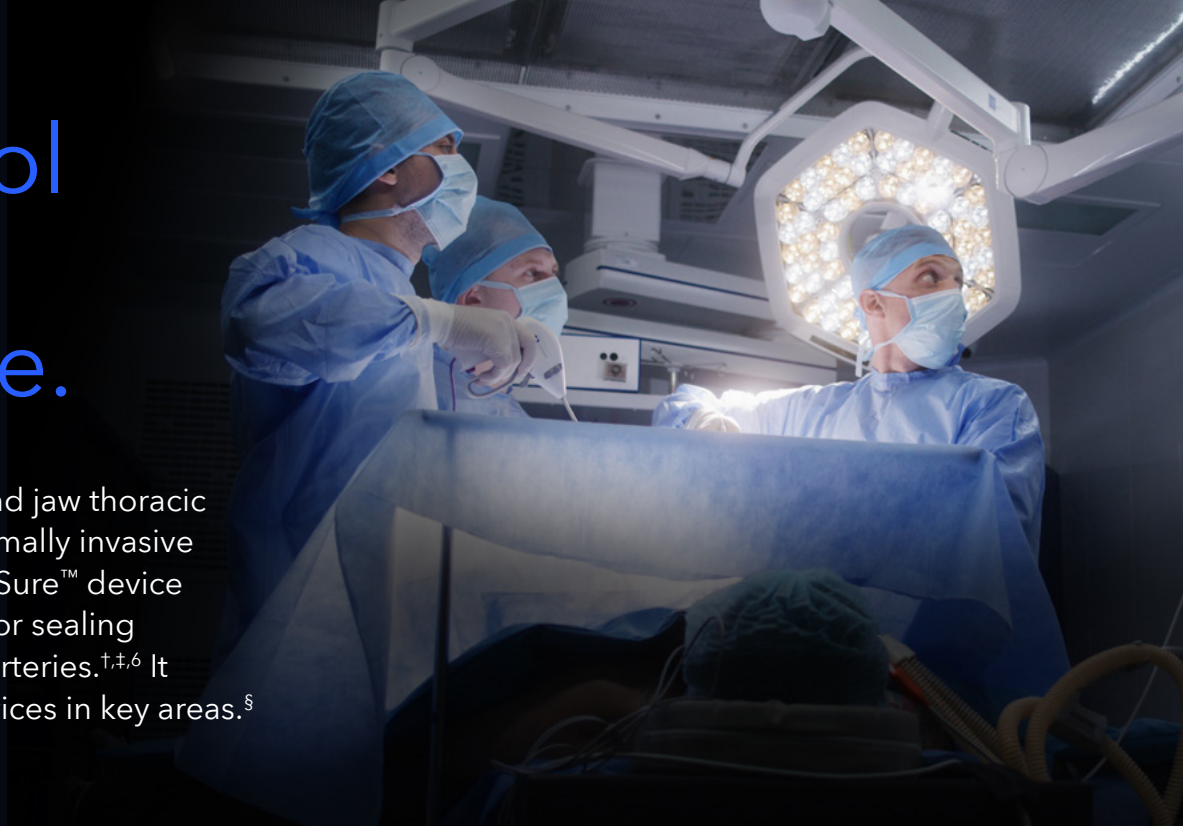
The LigaSure™ Maryland jaw thoracic device is powered by the Valleylab™ FT10 energy platform, which:

- Reads tissue 434,000 times per second – and automatically adjusts energy output to maintain the desired clinical effect[19]

Power your procedures with LigaSure™ technology and the Valleylab™ FT10 energy platform

† 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.
¶ 31 of 33 surgeons surveyed after use agreed.
# Compared to straight jaws.
Δ 30 of 33 surgeons surveyed after use agreed.
∞ 29 of 32 surgeons surveyed after use agreed.
†† Ex-vivo testing model used to evaluate monopolar performance.
‡‡ Bench testing model used to evaluate sealing time.
§§ Testing performed using porcine model. Tissue types included isolated vasculature and A/V bundles, root of the mesentery, mesentery, mesometrium, isolated/bundle vasculature, lymphatic ducts, omentum. Using LigaSure™ devices: LF1212A, LF1637, LF4318 and LS1037.
◊◊ Compared to the ForceTriad™ energy platform.

Stay cool under pressure.

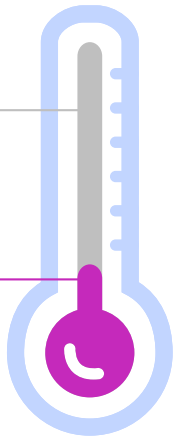


The LigaSure™ Maryland jaw thoracic device is the only minimally invasive advanced energy LigaSure™ device specifically indicated for sealing pulmonary veins and arteries.[†,‡,6] It outperforms other devices in key areas.[§]

Cooler jaw temperature[◊,7,20]

222 °C
Harmonic™* HD 1000i

64 °C
LigaSure™ Maryland jaw thoracic device



Faster cooldown[◊,7,20] to 60 C

LigaSure™ Maryland jaw thoracic device

Harmonic™* HD 1000i

Less thermal spread

The LigaSure™ thoracic device produces significantly less thermal spread than the Olympus Thunderbeat™*.[§,7,13]

Nano-coated enables greater efficiency

The LigaSure™ Maryland jaw thoracic device has our proprietary nano-coating on the jaws. That means less eschar buildup[Δ,∞,7,16] and fewer cleanings during the procedure.[††,7,16]

Reduces sticking by 97 percent compared to the Ethicon™* EnSeal G2 device[††,7,15]

Reduces sticking by 97 percent compared to the Voyant™* 5 mm Fusion device[‡‡,8,15]

† As of March 23, 2018, based on indications for use for laparoscopic LigaSure™ devices.
‡ Vessels up to, and including, 7 mm.
§ Seals performed on systemic vasculature.
◊ Single activation. Harmonic™* HD 1000i was measured while using advanced hemostasis. All seals were performed on systemic vasculature.
¶ Based on systemic vasculature.
# Compared to Harmonic™* HD1000i.
Δ Eschar buildup assessed using optical imaging analysis after 60 seal and divide cycles.
∞ Compared to legacy, noncoated device.
†† Cleaning effectiveness assessed after each of two cleaning cycles.
‡‡ 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.

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	The jaw delivers improved access,[†,‡,7,10] tip visualization,[‡,§,7,10] and blunt dissection.[◊,7,8]	"[Compared to an electrosurgical 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.[21]

Lung mobilization

Procedural Step	LigaSure™ Thoracic Device Benefits	Clinical Literature
Step 1 Lysis of adhesions and transection of the pulmonary ligament	The multifunctionality of the device provides an efficient,[¶,7,10] versatile, hemostatic solution without opening an extra device.	"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.[22]
Step 2 Dissection of the hilum to expose critical structures	The jaw shape of the LigaSure™ thoracic device delivers reliable vessel sealing[23] with improved access,[†,‡,7,10] tip visualization,[‡,§,7,10] and blunt dissection.[◊,7,8]	"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.[22]

Division of critical structures

Procedural Step	LigaSure™ Thoracic Device Benefits	Clinical Literature
Step 3 Ligation and division of pulmonary arteries and veins	• Specifically designed for VATS procedures and pulmonary vasculature[1-5] • Improved access[†,‡,7,10] and visibility[‡,§,7,10] • Reliable hemostasis[23] • Enhanced blunt dissection[◊,7,8] • Multifunctionality that may reduce instrument exchanges[#,7,10] and procedure time[Δ,24]	"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.[25]

†31 of 33 surgeons surveyed after use agreed.
‡Compared to straight jaws
§30 of 33 surgeons surveyed after use agreed.
◊23 of 32 surgeons surveyed after use agreed when compared to surgeon's primary device.
¶32 of 32 surgeons surveyed after use agreed.
#20 of 32 surgeons surveyed after use agreed.
Δ19 of 21 thoracic surgeons surveyed after using agreed when compared to their currently preferred method.

It’s time to advance thoracic care.

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

LigaSure™ Maryland jaw thoracic device

Tri-Staple™ 2.0 specialty reloads[17]

Signia™ small diameter reloads[19]

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[‡,2] of LigaSure™ vessel-sealing technology. Plus, it:

- Is designed specifically for thoracoscopic/VATS/open procedures and pulmonary vasculature[1,3–6]
- Uses a proprietary nano-coating on the jaws to reduce sticking,[§,◊,7] eschar buildup,[§,¶,8] and cleanings[§,#,8]
- May reduce instrument exchanges[Δ,9]
- Securely and atraumatically grasps tissue[∞,10,11]
- Provides enhanced blunt dissection[††,10,11]
- Allows for cutting independent of sealing[10,12]

I'm confident in using a technology that has been used in more than 35 million cases[13] 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 10, 2024, based on indications for use for laparoscopic LigaSure™ devices.

‡ Backed by our post-market quality assurance activities. Medtronic will not perform complaint investigations on competitive devices.

§ 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.

Δ 17 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. Chivukula, S.R., Lammers, S. & Wagner, J. Assessing organic material on single-use vessel sealing devices: a comparative study of reprocessed and new LigaSure™ devices. *Surg Endosc.* 2020.
3. Based on internal report #RE00138840, LIG-45 memo, device length recommendation, thoracic (LF1930T). Feb. 6, 2018.
4. 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.
5. Based on internal test report #RE00134865, Burst pressure verification of pulmonary bovine veins using the LigaSure™ LF1930T device. Jan. 17–18, 2018.
6. 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.
7. 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.
8. Based on internal test report #RE00071599, LF19XX MJC marketing claims testing conducted on porcine tissue, Feb. 7–22, 2017.
9. 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.
10. Based on internal test report #RE00140529 rev A, LigaSure™ Maryland device, nano coated (LF19XX) tissue testing (memo). Mar. 5, 2018.
11. 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.
12. LigaSure™ Maryland jaw Sealer/Divider Nano-coated [instructions for use]. Boulder, CO: Medtronic; 2016.
13. Based on internal sales data from FY01-FY20. October 2019.

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Transform your thoracic procedures.

Contact your sales representative for more information about **the first – and only – minimally invasive LigaSure™ device specifically indicated for pulmonary vessels**[†,6]

Ordering information

LF1930T | 6 per case

† As of March 10, 2024, 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. Based on internal report #RE00147462, Pulmonary sealing claims for the LigaSure™ LF1930T device (memo). March 29, 2018.
7. Based on internal test report #RE00140529 rev A, LigaSure™ Maryland device, nano-coated (LF19XX) tissue testing (memo). Mar. 5, 2018.
8. 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.
9. LigaSure™ Maryland jaw Sealer/Divider Nano-coated [instructions for use]. Boulder, CO: Medtronic; 2016.
10. 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.
11. Based on internal sales data from FY01-FY20. October 2019.
12. Based on internal test report #R0064457, LigaSure™ device renal bench burst pressure evaluation of the Valleylab™ FT10 energy platform. May 3, 2015.
13. 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.
14. Based on internal test report #RE00025819 rev A, LigaSure™ device data sources for VLFT10 white papers. September 2015.
15. Based on internal test report #RE00071599, LF19XX MJC marketing claims testing conducted on porcine tissue, Feb. 7–22, 2017.
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. Significance of staple height on air leak after wedge resection for pulmonary malignant tumor
18. 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.
19. Slow-firing mode reduces stump oozing during pulmonary vessel stapling.
20. 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.
21. 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.

This material should not be considered the exclusive source of information, it does not replace or supersede information contained in the device manual(s). Please note that the intended use of a product may vary depending on geographical approvals. See the device manual(s) for detailed information regarding the intended use, the (implant) procedure, indications, contraindications, warnings, precautions, and potential adverse events. For a MRI compatible device(s), consult the MRI information in the device manual(s) before performing a MRI. If a device is eligible for eIFU usage, instructions for use can be found at Medtronic's website manuals.medtronic.com. Manuals can be viewed using a current version of any major internet browser. For best results, use Adobe Acrobat® Reader with the browser. Medtronic products placed on European markets bear the CE mark and the UKCA mark (if applicable). For any further information, contact your local Medtronic representative and/or consult Medtronic's websites.

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