A multi-functional vessel sealing instrument that combines reliable sealing with predictability and precision.

SAFETY
FMsealer Laparoscopic Shears provides reliable vessel sealing and minimized thermal impact to healthy tissue without passing electrical current through tissue, eliminating stray currents, reducing risk of capacitive coupling, and making it safe to operate near metal staples, clips, and instruments.1

RELIABILITY
FMsealer Laparoscopic Shears seals vessels up to 7 mm in diameter, including lymphatics, with reliability and performance comparable to industry-leading vessel sealing instruments.1

SPEED & EFFICIENCY
50% faster transection of vascular tissue bundles than bipolar and ultrasonic devices.1 Distinct activation modes have been optimized for different desired tissue interaction.

PRECISION
Precise control of heat with less lateral thermal spread than competitive instruments.1

References
1. Validation of a Laparoscopic Ferromagnetic Technology-based Vessel Sealing Device and Comparative Study to Ultrasonic and Bipolar Laparoscopic Devices, Jennwood Chen, MD, Curtis B. Jensen, MS, Preston K. Manwaring, MSEE, PhD, and Robert E. Glasgow, MD, Surgical Laparoscopy, Endoscopy & Percutaneous Techniques, 2017 Apr;27(2):e12-e17
2. Internal data on file
FMsealer Laparoscopic Shears are a multi-functional vessel sealing instrument that uses ferromagnetic technology to reliably seal and divide tissue with minimal impact to adjacent healthy tissue.

**ENHANCED PATIENT SAFETY**

Energy-based vessel sealing instruments use a combination of heat, friction, and compression force to seal and divide tissue. Each source of energy presents unique operational and safety considerations.

- **Bipolar**
  - Heat is created through thermal friction of the active blade, sealing and dividing the tissue. Inherent in the process is the risk of straying current, arcing, or sparking.

- **Ultrasonic**
  - Tissue is simultaneously sealed and divided. Heat is created through vibrational friction of the active blade, sealing and dividing the tissue. Each source of energy presents unique operational and safety considerations.

- **Ferromagnetic**
  - Magnetic energy is directed from the active jaw to the inactive jaw, uniformly fusing tissue together. Each source of energy presents unique operational and safety considerations.

**SPEED & EFFICIENCY**

FMsealer Laparoscopic Shears provide unmatched speed and efficiency when transecting through vascular tissue bundles.

**Transaction Speed Test**

Speed tests were performed using LigaSure, Harmonic, and FMsealer laparoscopic vessel sealing instruments. A 10 cm section of porcine mesentery was measured, measured, and marked prior to transection. Each instrument was used to seal and divide each artery was harvested. HE staining and histologic assessment of lateral thermal spread was performed by an independent reviewer. Lateral thermal spread was determined to be the maximum distance thermal injury extends laterally from the edge of the instrument.

**RELIABLE VESSEL SEALING**

FMsealer Laparoscopic Shears deliver effective vessel sealing with reliability and performance comparable to or better than industry leading vessel sealing instruments, even when sealing larger vessels (> 2 mm in diameter*).

**Sealing Reliability Study**

Porcine arteries measuring 3-5 mm in diameter were sealed in a controlled laboratory setting using LigaSure, Harmonic, and FMsealer laparoscopic vessel sealing instruments. Each vessel was sealed, divided, and assessed for seal integrity. The percentage of overall seals that resulted in burst pressures above 240 mmHg are shown below.1

**Burst Pressure Study**

Porcine arteries measuring 3-5 mm in diameter were sealed using a pre-measured segment. Multiple seals were completed with each instrument, and the average time to complete each 10 cm transection is shown below.1

**Activation Modes**

FMsealer offers multiple power settings and activation modes, each optimized for a different desired tissue interaction.

**FMsealer Laparoscopic Shears are a component of the FMX™ Ferromagnetic Surgical System.**