FMsealer™  
Open Shears  
A multi-functional vessel sealing instrument that combines reliable sealing with predictability and precision.

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

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

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

PRECISION  
Precise control of heat with 15% less lateral thermal spread than competitive instruments, and less desiccation and char formation than competitive instruments.

References
2. Internal data on file
SAFETY

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SPEED & EFFICIENCY

50% faster transection of vascular tissue bundles than bipolar and ultrasonic devices.2 Distinct activation modes have been optimized for different desired tissue interaction.

PRECISION

Precise control of heat with 15% less lateral thermal spread than competitive instruments,1 and less desiccation and char formation than competitive instruments.1

References


2. Internal data on file

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

**FMsealer Open Shears** deliver effective vessel sealing with reliability and performance comparable to or better than industry leading vessel sealing instruments, even when sealing larger vessels (> 5 mm in diameter).

**RELIEVABLE VESSEL SEALING**

FMsealer Open Shears seal and divide tissue with a predictable thermal effect, producing less lateral thermal spread than competitive bipolar and ultrasonic vessel sealing instruments.

**PRECISION, PREDICTABILITY, & CONTROL**

FMsealer Open Shears seal and divide tissue with a predictable thermal effect, producing less lateral thermal spread than competitive bipolar and ultrasonic vessel sealing instruments.

**SPEED & EFFICIENCY**

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

**Activation Modes**

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

**FMmax 3**

High-power seal & divide mode. Used to seal large vessels (> 5 mm in diameter) with minimal tissue desiccation and char formation.

**FMmax 2**

Seal & divide mode. Used to seal & divide large vessels (> 5 mm in diameter) with minimal tissue desiccation and char formation.

**FMmax 1**

Seal only mode. Used to seal large vessels (> 5 mm in diameter) with minimal tissue desiccation and char formation.

*Based on surgeon experiences and feedback.*

**Lateral Thermal Spread Study**

Porcine arteries measuring 5 mm in diameter were sealed and divided using Harmonic®, FMsealer, and LigaSure open vessel sealing instruments. Activation and sealing parameters were pre-measured segments. Multiple rounds were completed with each instrument, and the average time to complete each 10 cm transection is shown below.

**Histologic analysis of comparative seals using a Harmonic Focus (upper right) and FMsealer Open Shears (lower right) in porcine arteries.**

Black lines indicate measurements of thermal damage.
FMsealer Open 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.

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.

Ferromagnetic energy is a different category of energy that can be used in a controlled manner. Unlike other energy sources, ferromagnetic energy does not pose the risk of heat or friction damage. Moreover, in some cases, heat and friction energy cannot achieve the same tissue effect. Ferromagnetic energy can achieve equivalent results with less collateral damage to surrounding tissues.

FMsealer Open Shears are a component of the™ Ferromagnetic Surgical System.

FMsealer Open Shears deliver effective vessel sealing with reliability and performance comparable to or better than industry leading vessel sealing instruments, even when sealing larger vessels (> 5 mm in diameter).1

FMsealer Open Shears provide unmatched speed and efficiency when transecting through vascular tissue bundles.2

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

FMsealer Open Shears offer unmatched speed and efficiency when transecting through vascular tissue bundles.2

1. POSITIVE PATIENT OUTCOMES
FMsealer delivers precise sealing and division with minimal impact to healthy surrounding tissue, creating less tissue desiccation and char formation during use.2

Lateral Thermal Spread Study
Porcine arteries measuring 5 mm in diameter were sealed and divided using Harmonic, LigaSure, and FMsealer open vessel sealing instruments. After sealing and dividing, each artery was severed, and lateral thermal spread was measured using an automated inflation system until the seal failed.2

PERFECTLY PRECISE
Activation Modes
FMsealer offers several power settings and activation modes, each optimized for a different desired tissue interaction.

FM100 3 High power seal & divide mode. Used in critical seal & divide situations where high power is required.

FM100 2 Full ‘B’ mode. Used in seal & divide large vessels (5 mm in diameter) required for high power application.

FM100 1 Seal only mode. Used for seal large vessels (> 2 mm in diameter) if desired. Can be used for dividing large vessels (> 2 mm in diameter).

* Based on surgeon experience and feedback.

FMsealer Open Shears

Sealing Reliability Study
Porcine arteries measuring 4 mm in diameter were sealed in a controlled laboratory setting using Ligasure™, Harmonic®, and FMsealer open vessel sealing instruments. The percentage of sealed tests that resulted in seal failure was measured.2

Burst Pressure Study
Porcine arteries measuring 6 mm in diameter were sealed easy to Ligasure™, Harmonic®, and FMsealer open vessel sealing instruments. Each sealed vessel was divided, and pressure was used in an automated inflation system until the seal failed. Average burst pressure was measured in mmHg.2

Lateral Thermal Spread Test
Porcine arteries measuring 5 mm in diameter were sealed and divided using Harmonic, LigaSure, and FMsealer open vessel sealing instruments. After sealing and dividing, each artery was severed, and lateral thermal spread was measured using an automated inflation system until the seal failed.2

Histologic analysis of comparative seals using a Harmonic Focus (upper right) and FMsealer Open Shears (lower right) in porcine arteries. Black lines indicate measurements of thermal damage.2

FMsealer offers unmatched speed and efficiency when transecting through vascular tissue bundles.2

PENETRATION
FMsealer offers unmatched speed and efficiency when transecting through vascular tissue bundles.2
FMsealer Open 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.

FMsealer Open Shears deliver effective vessel sealing with reliability and performance comparable to or better than industry leading vessel sealing instruments, even when sealing larger vessels (> 5 mm in diameter).

FMsealer Open Shears provide unmatched speed and efficiency when transcending through vascular tissue bundles.

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

RELIABLE VESSEL SEALING
FMsealer Open Shears seal and divide tissue with a predictable thermal effect, producing less lateral thermal spread than competitive bipolar and ultrasonic vessel sealing instruments. FMsealer is gentler on healthy surrounding tissue, creating less tissue desiccation and char formation during use.

precise, Predictability, & Control
FMsealer Open Shears seal and divide tissue with a predictable thermal effect, producing less lateral thermal spread than competitive bipolar and ultrasonic vessel sealing instruments. FMsealer is gentler on healthy surrounding tissue, creating less tissue desiccation and char formation during use.

Precision Mode
FMsealer offers Precision Mode for select devices. Use in areas where localization is critical to avoid thermal spread and fatigue.

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

Seal & divide mode
Used for seal large vessels (> 2 mm in diameter), seal & divide small vessels (< 2mm in diameter).

Seal only mode
Used to seal large vessels (> 2 mm in diameter) without large lateral thermal spread and fatigue.

Speed & Efficiency
FMsealer Open Shears provide unmatched speed and efficiency when transcending through vascular tissue bundles.

Speed tests were performed using LigaSure, Harmonic, and FMsealer open vessel sealing instruments. A 10 cm section of porcine carotid was measured and marked prior to transsection. Each source of energy was used to seal and divide pre-measured segments. Multiple rounds were completed with each instrument, and the average time to complete each 10 cm transection is shown below.

Lateral Thermal Spread Study
Precise settings measuring 5 mm in diameter were sealed and divided using LigaSure, Harmonic, and FMsealer open vessel sealing instruments. After sealing and dividing, each area was measured. Histological and histometric assessment of lateral thermal spread was performed by an independent observer. FMsealer thermal spread was significantly less than competitive bipolar and ultrasonic vessel sealing instruments. FMmax setting delivers thermal spread as low as 5.2 mm.

Histology analysis of comparative seals using a Harmonic Focus (upper right) and FMsealer Open Shears (lower right) in porcine arteries. Black lines indicate measurements of thermal damage.
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References


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