MEGADYNE™

Active electrodes and generators

OVERVIEW

A complete range of cutting, coagulating, and precise dissecting tools, including generators and accessories to help surgical teams to deliver the best possible outcomes.

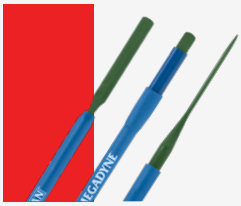
WHAT WE OFFER

GENERATOR & ACCESSORIES

Our generator offers robust functionality, a streamlined user-friendly design and proprietary technology for optimized energy delivery. The ETHICON MEGADYNE™ Electrosurgical Generator is designed to provide simply smart performance[1-4], powering the core energy devices critical to performing surgery.

GEM TECHNOLOGY SYSTEM

GEM Technology used in GEM Mode achieved a more scalpel-like cutting effect with significantly less thermal damage compared to a standard electrosurgical blade.[5,6]*



E-Z CLEAN™ ELECTRODES AND PENCILS

E-Z Clean electrodes with PTFE coating were designed to be more durable than blades coated with silicone.[7-9] E-Z Clean electrodes with PTFE coating are easily cleaned during surgery with a damp gauze or sponge,[10,11] and are offered in multiple tips and lengths.

STAINLESS STEEL TIPS AND PENCILS

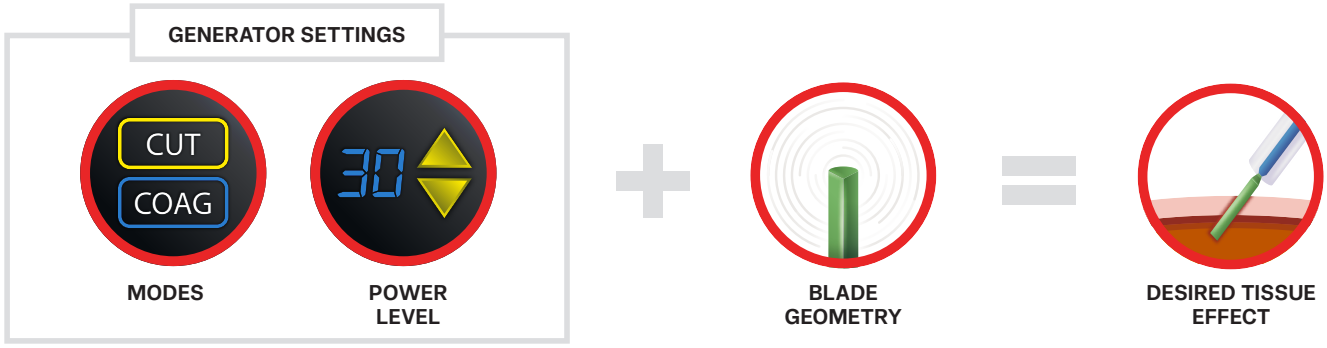
Our high-quality stainless-steel electrodes and pencils are designed for optimal performance and value. We offer a wide range of active electrode configurations and lengths based on the need of the surgical procedure.

FOOTNOTE

***vs.** standard monopolar electrosurgery, in a preclinical porcine model on abdominal wall dermis that measured thermal damage via histology ($p<0.05$). Based on pre-clinical testing on animal models and clinical effect is unknown

HOW IT WORKS

HOW TO ACHIEVE THE DESIRED TISSUE EFFECT WITH MONOPOLAR ELECTROSURGERY.



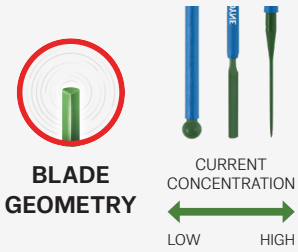
MODES AND POWER LEVELS

Electrosurgical generators produce a variety of tissue effects dependent on the selected waveforms (Modes) and power levels.

CUT: GEM, PURE, BLEND

COAG: COAG 1, COAG 2, SPRAY, SOFT

BIPOLAR: MICRO, MACRO



BLADE GEOMETRY

Electrodes with smaller surface area result in higher current concentration, which help to produce vaporization and cutting of tissue.

Electrodes with larger surface area result in lower current concentration, which help to produce coagulation and desiccation of tissue.

DESIRED TISSUE EFFECT

Vaporization

Generator Mode: High current, Low voltage (CUT)

Surgical Technique: Non-contact with tissue

Surgical Effect: Rapidly heats tissue yielding minimal thermal spread, allowing collateral tissue to remain unaffected during dissection

Desiccation

Generator Mode: Low current, High voltage (COAG)

Surgical Technique: Direct contact with tissue

Surgical Effect: Cell shrinkage due to evaporation of water, where electrical energy is converted into heat within the tissue, resulting in deeper necrosis and thermal spread

Fulguration

Generator Mode: Low current, High voltage (SPRAY)

Surgical Technique: Non-contact with tissue, arcing

Surgical Effect: Produces high temperatures that cause wide thermal spread and surface level destruction of cells, resulting in shallow cuts and hemostasis over a large area

CUTTING | **COAGULATION**

In addition to the above factors mentioned, note that tissue type, time on tissue, and surgeon technique also contribute to the overall desired tissue effect.

REFERENCES

1. Ethicon, 500425842A, ETHICON MEGADYNE™ Electrosurgical Generator: Technical Design Background Memo, February 2020, Data on File **2.** Ethicon, ENG-RPT-625, Summative Usability and Design Validation, Ethicon Megadyne Electrosurgical Generator, April 2021, Data on File **3.** Ethicon, MKT-DOC-001, Golden Gate Marketing Claims Memo, Sept 2019, Data on File **4.** Ethicon Geometric Electron Modulation (GEM) Technology: Technical Monograph 12/18.2017. Windchill Document #SCN053750A **5.** Wu A, Baldwin TJ, Lewis RD et al, Healing comparison of porcine cutaneous incisions made with cold steel scalpel, standard electrosurgical blade, and a novel tissue dissector;2017;5;1-6 **6.** Ethicon, Megadyne ACE Blade Thermal Damage Claims. 10/31/2017. Windchill Document #PSP005780 **7.** Ethicon, 01052017, Silicone in Electrosurgical Coatings, May 2017, Data on File **8.** Teflon PTFE fluoropolymer resin properties handbook available at http://www.rjchase.com/ptfe_handbook.pdf [Accessed 23 February 2022] **9.** Common Bond Energies available at https://www.wiredchemist.com/chemistry/data/bond_energies_lengths.html [Accessed 23 February 2022] **10.** Ethicon, 02052017, MEGADYNE™ PTFE coating claims engineering rationale, May 2017, Data on File **11.** As Per Instructions For Use

Please refer always to the Instructions for Use / Package Insert that come with the device for the most current and complete instructions.

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MEGADYNE™

Powering moments that matter.

The MEGADYNE™ brand is built on a relationship of trust. Our goal is to provide all your operating suites with efficient and reliable electrosurgical solutions so you can do what you do best.