Medtronic

Engineering the extraordinary

Breathe easier

Reducing surgical smoke in the operating room

Minimize smoke.
Maximize performance.

PlasmaBlade™ X Dissection Device

Precise dissection and coagulation of soft tissue

How it works

A 99.5%-insulated electrode precisely concentrates brief pulses of radiofrequency energy, resulting in lower operating temperatures than traditional electrosurgery.[24]

Key effects

- Equivalence to scalpel in healed incision strength, inflammatory response following skin incision, and healed scar width[15,16,17]
- 74% less thermal injury depth observed when compared to traditional electrosurgery ($p<0.001$)[17]
- Reduced surgical smoke[14]*
- Maintains cutting effectiveness and hemostatic ability even when submerged in liquified tissue or blood[15]

Benefits

- Single "skin-to-skin" instrument eliminates device exchanges and, as a result, the risk of scalpel injuries incurred during exchanges[18,19]
- May be used in closer proximity to adjacent structures with less risk of thermal exposure[15]
- Improved OR efficiency due to elimination of device exchanges[18]

Aquamantys™ Bipolar Sealer

Hemostatic sealing of soft tissue and bone

How it works

Using a proprietary combination of radiofrequency energy and saline, Aquamantys™ bipolar sealers operate at nearly 200˚C less than traditional electrosurgical devices[23]

Key effects

- Broad-plane hemostasis
- Reduced intraoperative and total blood loss[20]
- Reduced surgical smoke[14]

Benefits

- Reduced transfusion rates[20]
- Maintained hemoglobin levels[20]
- Reduced post-operative drainage[21]
- Fewer hematomas[22]
- Reduced post-operative incidence of hemarthrosis[21]
- Reduced length of stay and OR time
- Fewer discharges to home health or skilled nursing facilities[22]

Lose the smoke. Keep the performance.

The risk is clear.

The surgical community has been examining the hazards of exposure to electrosurgical smoke for more than 40 years.[1,2] The effluent generated when tissue is vaporized and charred during electrosurgical dissection and coagulation has been shown to contain:

- Volatile organic compounds[3,4]
- Known carcinogens and mutagens[6,7]
- Infectious viral, bacterial, and aerosolized malignant cells[8,9]
- A host of poorly characterized, microscopic particulates[6,10,11,12]

Chronic inhalation of these components by operating room personnel poses a potential long-term health hazard.[5,6,9]

Evidence has shown that 1 gram of tissue produces a smoke plume with an equivalent mutagenicity to six unfiltered cigarettes.[13] In addition, surgical masks are good at capturing larger sized particles, generally ≥5 micrometers, but do not provide adequate protection in filtering smoke.[13]

So are the results.

Medtronic's advanced energy devices use proprietary technology to operate at lower temperatures than traditional electrosurgery.[23,24] The result is low-temperature hemostasis and dissection with technology that has been shown to produce less surgical smoke than traditional instruments.[14]

A difference that's easy to see

In a benchtop study comparing PlasmaBlade™ X technology and Aquamantys™ bipolar sealers to a traditional electrosurgical instrument, researchers collected smoke produced during activation on steak with a suction device. The images shown on the right show smoke particulate captured from filters located within each device.

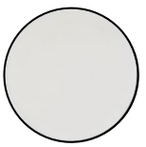
In addition, particulate composition collected from the study was weighed and compared in the charts below.

PlasmaBlade™ X technology produced:

- 95% less surgical smoke in cut mode[14] (n=6; p=.01)
- 84% less surgical smoke in coagulation mode[14] (n=6; p=.01)

The Aquamantys™ bipolar sealer produced a nearly negligible level of surgical smoke compared to traditional electrosurgery.[14]

CUT



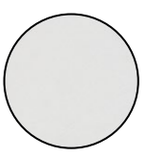
PlasmaBlade™ X Technology
CUT 6

Traditional Electrosurgical Instrument
CUT 40 watts

Area COAG

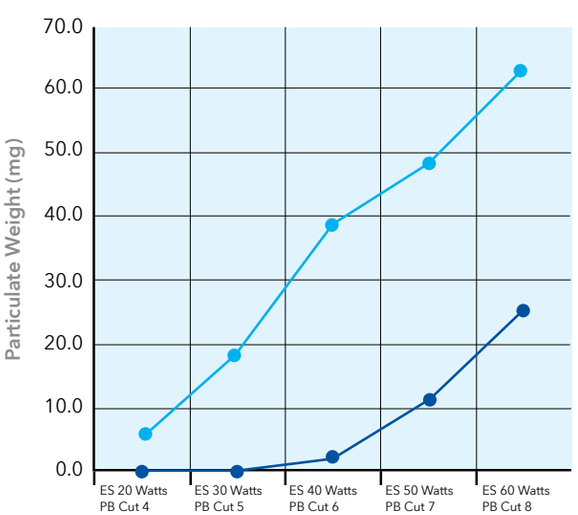
PlasmaBlade™ X Technology
Area COAG 6

Traditional Electrosurgical Instrument
Area COAG 40 watts



Aquamantys™ 6.0 Bipolar Sealer
Area COAG 170 watts

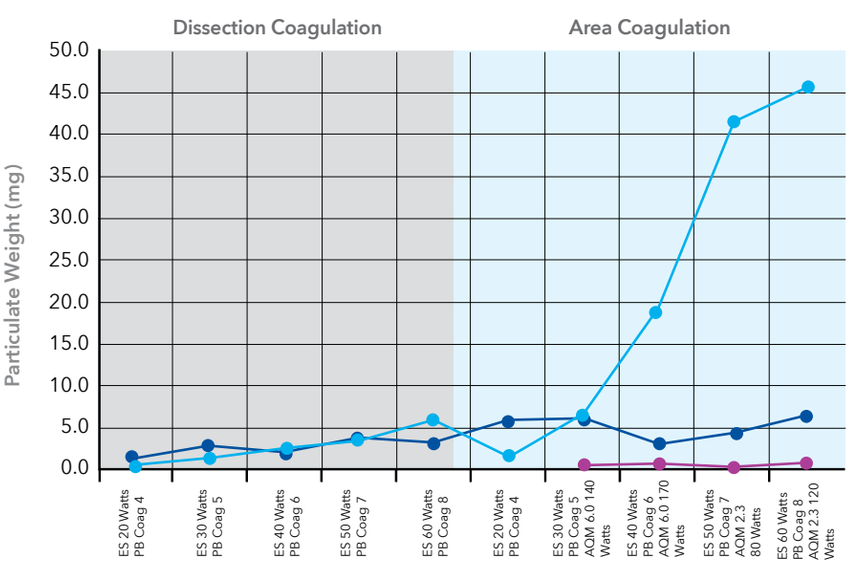
Average weight of surgical smoke particulate: CUT mode[14]



Electrosurgical pencil (ES)

PlasmaBlade™ X technology (PB)

Average weight of surgical smoke particulate: COAG mode[14]



Electrosurgical pencil (ES)

PlasmaBlade™ X technology (PB)

Aquamantys™ bipolar sealer (AQM)

Ordering information

Description	Catalog number
Aquamantys™ 6.0 bipolar sealer	23-112-1
Aquamantys™ 2.3 bipolar sealer	23-113-1
Aquamantys™ MBS	23-301-1
AEX™ generator	40-405-1
PlasmaBlade™ X 4.0	PS200-040
PlasmaBlade™ X 3.0S	PS210-030S
PlasmaBlade™ X 4.0S	PS200-041S
PlasmaBlade™ X 3.0S LIGHT	PS210-030S-LIGHT

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    *Please note: evidence derived from in vitro, in vivo, or clinical studies, and performance may not be specifically established in all procedures.
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Rx only. Refer to product instruction manual/package insert for instructions, warnings, precautions and contraindications.