

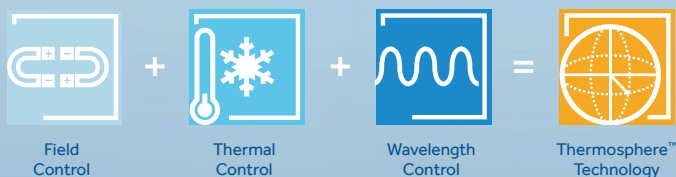
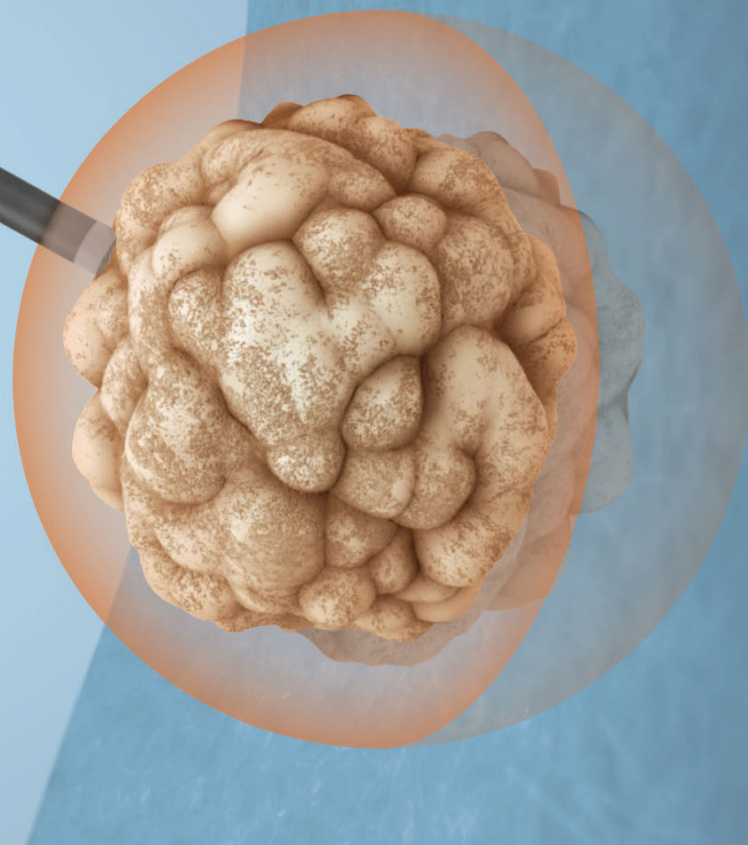
ADVANCED ABLATION SOLUTIONS



Medtronic Advanced Ablation Solutions products, including the Emprint™ ablation system with Thermosphere™ Technology and the Cool-tip™ RF Ablation E series System, provide a full range of solutions to meet all ablation needs.

Medtronic

POWERFUL PREDICTABILITY



Emprint™ ablation system with Thermosphere™ technology:

PREDICTABLE RESULTS

Allow more control to plan and execute procedures with predictable results regardless of target location or tissue type.¹

INCREASE CONFIDENCE

Increase confidence for achieving planned results with precision and consistency.

The Emprint™ ablation system with Thermosphere™ technology is a breakthrough product for the ablation of tumors in the liver, lung, kidney and other soft tissues.¹ Thermosphere™ technology, the revolutionary technology inside of the Emprint™ ablation system, gives clinicians three kinds of spatial energy control – thermal control, field control and wavelength control – to create consistent, reproducible spherical ablation zones regardless of tissue type or changes in tissue during a procedure.^{1,2}

- Thermal control minimizes uncontrolled thermal factors that contribute to a passive ablation zone.
- Field control delivers a precise, scalable spherical field.
- Wavelength control prevents wavelength elongation as tissue becomes desiccated or charred and its properties change during ablation.

The system uses a high power generator and high efficiency reusable cable to improve energy delivery and ablative performance. Due to the delivery of predictable spherical ablation zones, clinicians have more choice of approach further simplifying needle placement and saving time in both planning and procedure.

Emprint™ Ablation Generator

The ablation generator is a 100 W generator with an intuitive user interface and customizable power settings for simplified setup and operation.

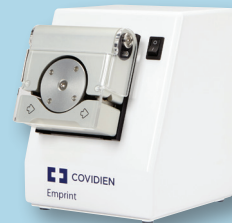
Product code: CAGEN1



Ablation Pump

A proven pump for efficient antenna cooling to minimize thermal conductivity for increased control and predictability.

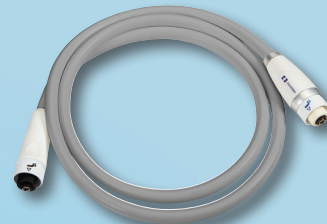
Product code: CAPUMP1



Ablation Reusable Cable

A high efficiency reusable cable optimizes power delivery and ablative performance

Product code: CA190RC1



Ablation Footswitch

The footswitch allows easy activation to save overall procedure time.

Product code: RFASW

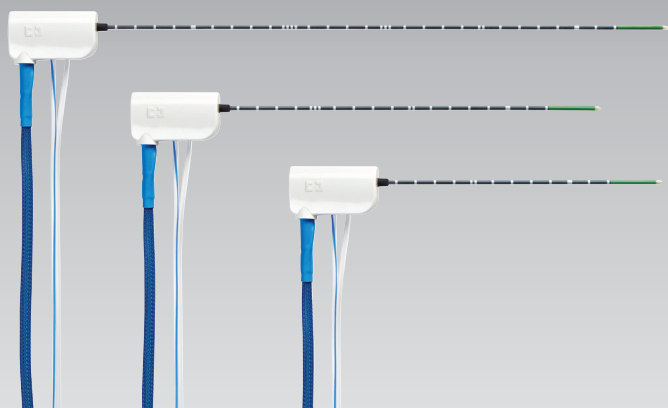


Ablation Cart

An all in one system designed with a 17"x19" footprint to save space in crowded procedural suites. Easy to set up to save time.³

Product code: CART1





Percutaneous Antenna with Thermosphere™ Technology

An internally cooled 13G antenna with single body fiberglass construction that reduces risk of antenna breakage during placement .

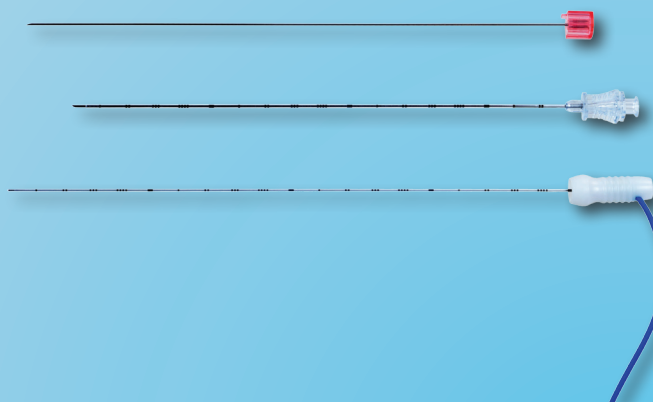
Product Code	Description	Unit of Sale
CA15L2	Emprint™ Percutaneous Antenna With Thermosphere Technology - Short 15cm	1
CA20L2	Emprint™ Percutaneous Antenna With Thermosphere Technology - Standard 20cm	1
CA30L2	Emprint™ Percutaneous Antenna With Thermosphere Technology - Long 30cm	1

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Remote Temperature Probe

The remote temperature probe verifies tissue temperature in real time and triggers automatic ablation shut off when a preset tissue temperature is attained.

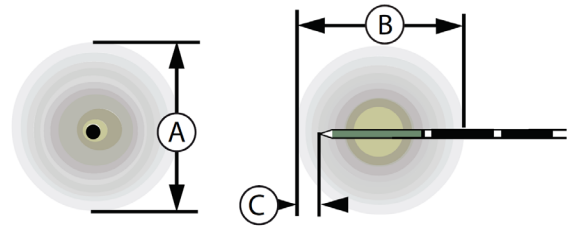
Product code: RTP20



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ABLATION RESULTS

The following ex-vivo and in-vivo ablation results were obtained using the Emprint Percutaneous Antenna with Thermosphere® Technology in animal tissue models.



Liver ablation ex-vivo and in-vivo data

ex-vivo	100 W				75 W				45 W			
	A	B	C	MM:SS	A	B	C	MM:SS	A	B	C	MM:SS
	2.4 cm	3.0 cm	0.4 cm	2:00	2.1 cm	2.6 cm	0.3 cm	2:00	1.5 cm	2.3 cm	0.2 cm	2:20
	3.5 cm	3.7 cm	0.6 cm	5:00	3.2 cm	3.4 cm	0.5 cm	5:00	2.4 cm	2.8 cm	0.3 cm	5:00
	3.9 cm	3.9 cm	0.7 cm	7:30	3.6 cm	3.6 cm	0.6 cm	7:30	2.9 cm	3.1 cm	0.4 cm	7:30
	4.1 cm	4.0 cm	0.7 cm	10:00	3.8 cm	3.7 cm	0.6 cm	10:00	3.2 cm	3.2 cm	0.5 cm	10:00

in-vivo	100 W				75 W				45 W			
	A	B	C	MM:SS	A	B	C	MM:SS	A	B	C	MM:SS
	2.9 cm	3.4 cm	0.5 cm	2:00	2.5 cm	2.9 cm	0.4 cm	2:00	2.3 cm	2.3 cm	0.2 cm	2:20
	3.4 cm	3.9 cm	0.7 cm	5:00	3.2 cm	3.5 cm	0.5 cm	5:00	2.3 cm	2.4 cm	0.2 cm	5:00
	3.6 cm	4.2 cm	0.8 cm	10:00	3.5 cm	3.7 cm	0.6 cm	10:00	2.4 cm	2.4 cm	0.2 cm	10:00

Lung ablation ex-vivo and in-vivo data

ex-vivo	100 W				75 W				45 W			
	A	B	C	MM:SS	A	B	C	MM:SS	A	B	C	MM:SS
	2.3 cm	3.4 cm	0.3 cm	2:00	2.1 cm	2.9 cm	0.2 cm	2:00	1.5 cm	2.4 cm	0.1 cm	2:20
	3.1 cm	3.8 cm	0.4 cm	5:00	2.9 cm	3.4 cm	0.4 cm	5:00	2.3 cm	3.0 cm	0.3 cm	5:00
	3.4 cm	3.9 cm	0.5 cm	7:30	3.2 cm	3.5 cm	0.4 cm	7:30	2.7 cm	3.2 cm	0.3 cm	7:30
	3.6 cm	3.9 cm	0.5 cm	10:00	3.4 cm	3.6 cm	0.4 cm	10:00	3.0 cm	3.3 cm	0.3 cm	10:00

in-vivo	100 W				75 W				45 W			
	A	B	C	MM:SS	A	B	C	MM:SS	A	B	C	MM:SS
	3.5 cm	4.1 cm	0.5 cm	2:00	3.2 cm	3.8 cm	0.4 cm	2:00	2.5 cm	2.9 cm	0.2 cm	2:20
	3.8 cm	4.2 cm	0.5 cm	5:00	3.6 cm	4.0 cm	0.5 cm	5:00	2.9 cm	3.3 cm	0.3 cm	5:00
	3.9 cm	4.3 cm	0.5 cm	10:00	3.7 cm	4.1 cm	0.5 cm	10:00	3.0 cm	3.5 cm	0.4 cm	10:00

Kidney ablation ex-vivo and in-vivo data

ex-vivo	100 W				75 W				45 W			
	A	B	C	MM:SS	A	B	C	MM:SS	A	B	C	MM:SS
	1.7 cm	2.1 cm	0.2 cm	0:45	1.6 cm	1.9 cm	0.2 cm	1:00	1.8 cm	2.0 cm	0.2 cm	2:20
	3.0 cm	3.0 cm	0.4 cm	3:00	3.1 cm	3.2 cm	0.5 cm	7:00	3.0 cm	2.8 cm	0.4 cm	9:00

in-vivo	100 W		
	A	B	MM:SS
	3.0 cm	3.4 cm	2:30

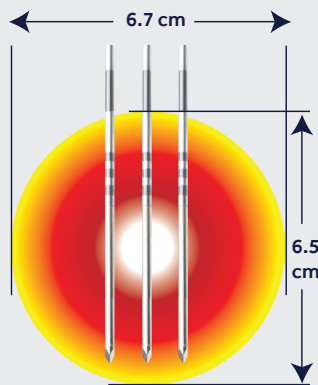
For radio frequency thermal ablation of single and multiple soft-tissue tumours, Medtronic offers the Cool-tip™ RF Ablation E Series System. E Series is preferred worldwide for its straight-needle design, and maximum energy delivery.

This state of the art radio frequency generator is equipped with a touch screen interface that allows for easy system setup and use.

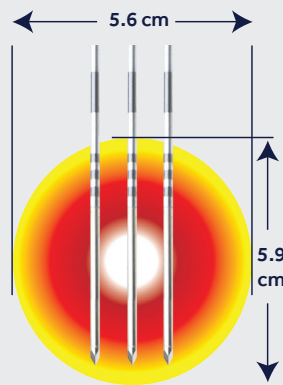
With its internally-cooled electrode design and ability to use up to three electrodes at a time, the E Series system limits tissue charring and permits increased energy deposition for larger ablation volumes.



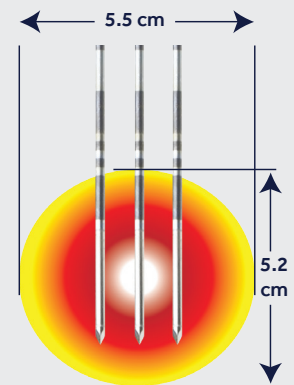
Cool-Tip™ RF Ablation System E Series, ablation zones:



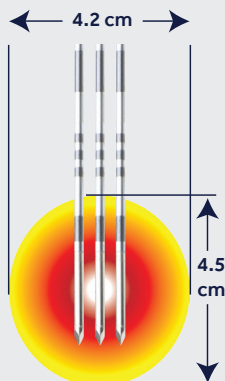
MULTIPLE ELECTRODES
4.0 cm EXPOSURE
25 MINUTES



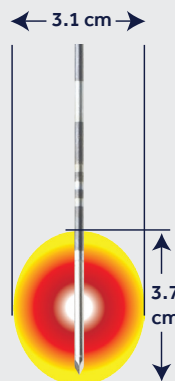
MULTIPLE ELECTRODES
4.0 cm EXPOSURE
16 MINUTES



MULTIPLE ELECTRODES
3.0 cm EXPOSURE
16 MINUTES



CLUSTER ELECTRODE
2.5 cm EXPOSURE
12 MINUTES



SINGLE ELECTRODE
3.0 cm EXPOSURE
12 MINUTES



SINGLE ELECTRODE
2.0 cm EXPOSURE
6 MINUTES

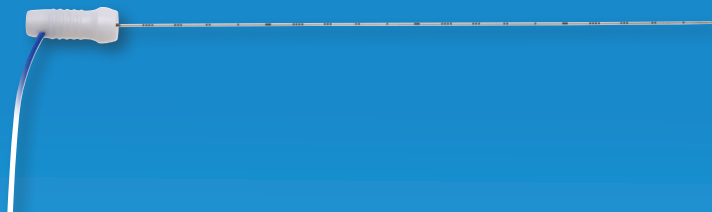


Cool-Tip™ RF Ablation E Series System

The Cool-Tip™ RF Ablation E Series System offers a simple and intuitive interface to perform ablation procedures using radio frequency technology.

Hardware system includes

Product Code	Description
RFAGEN	Cool-tip™ RF Ablation System E Series
RFAPAC	Component kit
FT900RFA	Cart
FT3X	Cart kit



Remote Temperature Probes

The remote temperature probe allows real-time tissue temperature monitoring for extra assurance. It measures tissue temperature in or adjacent to ablation zones and automatically stops RF delivery when a preset tissue temperature is attained.

Product Code	Description	Unit of Sale
RTP20	Cool-tip™ RF Ablation Remote Temperature Probe E Series - 20cm	1
RTP20B	Cool-tip™ RF Ablation Remote Temperature Probe E Series - 20cm	Box of 5

RF Ablation High-Power Patient Return Electrode E-Series

Innovative patient return electrode helps in protecting against potential hotspots and reduces number of pads required.

Its innovative design monitors current and offers a breathable backing that dissipates heat.

Order Code: RFAPADB



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Cool-Tip™ RF Ablation electrodes

The Cool-tip™ 17G straight electrodes are equipped with trocar-style tip and can be inserted, positioned and repositioned like a biopsy needle.

SINGLE ELECTRODE KITS

REF / SKU	Product	Length	Tip Exposure	Unit of Sale
RFA1020	Cool-tip™ RF Ablation Single Electrode Kit	10 cm	2 cm	1
RFA1030	Cool-tip™ RF Ablation Single Electrode Kit	10 cm	3 cm	1
RFA1507	Cool-tip™ RF Ablation Single Electrode Kit	14.4 cm	0.7 cm	1
RFA1510	Cool-tip™ RF Ablation Single Electrode Kit	15 cm	1 cm	1
RFA1520	Cool-tip™ RF Ablation Single Electrode Kit	15 cm	2 cm	1
RFA1530	Cool-tip™ RF Ablation Single Electrode Kit	15 cm	3 cm	1
RFA2020	Cool-tip™ RF Ablation Single Electrode Kit	20 cm	2 cm	1
RFA2030	Cool-tip™ RF Ablation Single Electrode Kit	20 cm	3 cm	1
RFA2530	Cool-tip™ RF Ablation Single Electrode Kit	25 cm	3 cm	1

CLUSTER ELECTRODE KITS

REF / SKU	Product	Length	Tip Exposure	Unit of Sale
RFAC1025	Cool-tip™ RF Ablation Cluster Electrode Kit E-Series	10 cm	2.5 cm	1
RFAC1525	Cool-tip™ RF Ablation Cluster Electrode Kit E-Series	15 cm	2.5 cm	1
RFAC2025	Cool-tip™ RF Ablation Cluster Electrode Kit E-Series	20 cm	2.5 cm	1

MULTIPLE ELECTRODE KITS

REF / SKU	Product	Length	Tip Exposure	Unit of Sale
RFA15302	Cool-tip™ RF Ablation Multiple Electrode Kit E-Series (Kit of 2)	15 cm	3 cm	1
RFA15303	Cool-tip™ RF Ablation Multiple Electrode Kit E-Series (Kit of 3)	15 cm	3 cm	1
RFA15403	Cool-tip™ RF Ablation Multiple Electrode Kit E-Series (Kit of 3)	15 cm	4 cm	1
RFA25303	Cool-tip™ RF Ablation Multiple Electrode Kit E-Series (Kit of 3)	25 cm	3 cm	1
RFA25403	Cool-tip™ RF Ablation Multiple Electrode Kit E-Series (Kit of 3)	25 cm	4 cm	1

References

1. Based on internal porcine testing "In vivo Performance Testing of the Emprint™ Microwave Ablation System in a Porcine Model," conducted during November 2013; R0043973.
2. Emprint™ device IFU: Percutaneous Antenna with Thermosphere™ Technology; 1058196.

medtronic.com*

*This is a global website. It is not specific to Canada.

Claims made throughout this brochure are based on clinical trials.

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