

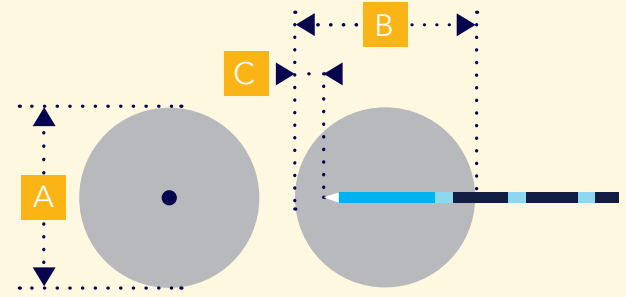
Medtronic

# Ablation zone reference charts



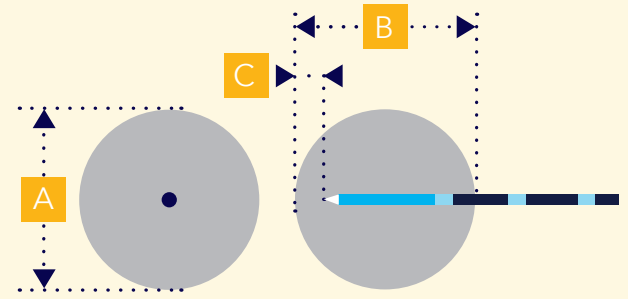
Emprint™  
HP ablation  
generator

## Ex vivo liver



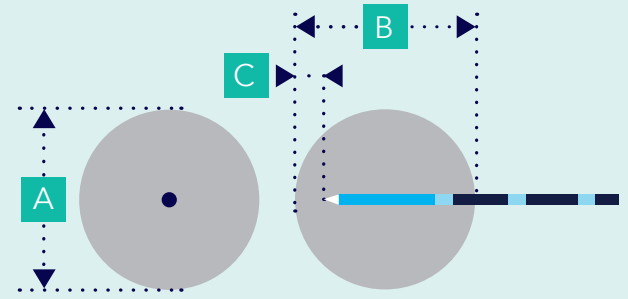
Ablation width	45W				75W				100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
1.3	1.7	1:30	0.1	1.5												
1.4					1.8	1:00	0.1	1.8	1.8	0:30	0.1	1.8				
1.6	2.0	2:00	0.1	2.7	2.1	1:30	0.2	2.8	2.2	1:00	0.2	2.9				
1.8	2.2	2:30	0.2	3.7												
1.9					2.4	2:00	0.2	4.5	2.5	1:30	0.3	4.7	2.5	0:30	0.3	4.7
2.0	2.3	3:00	0.2	4.8												
2.1					2.6	2:30	0.3	6.0	2.7	2:00	0.3	6.2				
2.2	2.5	3:30	0.3	6.3									2.8	1:00	0.4	7.1
2.3	2.6	4:00	0.3	7.2	2.7	3:00	0.3	7.5								
2.4									2.9	2:30	0.4	8.7	3.1	1:30	0.4	9.3
2.5	2.7	4:30	0.3	8.8	2.9	3:30	0.4	9.5	3.1	3:00	0.4	10.1				
2.6	2.8	5:00	0.3	9.9	3.0	4:00	0.4	10.6								
2.7	2.9	5:30	0.4	11.1					3.2	3:30	0.5	12.2	3.4	2:00	0.5	13.0
2.8					3.1	4:30	0.4	12.7								
2.9	3.0	6:00	0.4	13.2	3.2	5:00	0.5	14.1	3.3	4:00	0.5	14.5	3.6	2:30	0.5	15.9
3.0	3.1	6:30	0.4	14.6					3.5	4:30	0.5	16.5				
3.1	3.1	7:00	0.4	15.6	3.3	5:30	0.5	16.6					3.7	3:00	0.6	18.6
3.2	3.2	7:30	0.4	17.2	3.4	6:00	0.5	18.2	3.6	5:00	0.5	19.3	3.9	3:30	0.6	20.9
3.3	3.2	8:00	0.5	18.2	3.5	6:30	0.5	20.0	3.6	5:30	0.6	20.5				
3.4	3.3	9:00	0.5	20.0	3.5	7:00	0.5	21.2	3.7	6:00	0.6	22.4	4.0	4:00	0.7	24.2
3.5	3.4	9:30	0.5	21.8	3.6	7:30	0.5	23.1	3.8	6:30	0.6	24.4				
3.6	3.4	10:00	0.5	23.1	3.6	8:00	0.6	24.4	3.9	7:00	0.6	26.5	4.1	4:30	0.7	27.8
3.7					3.7	8:30	0.6	26.5	3.9	7:30	0.6	28.0	4.2	5:00	0.7	30.1
3.8					3.8	9:30	0.6	28.7	4.0	8:00	0.6	30.2	4.3	5:30	0.7	32.5
3.9					3.8	10:00	0.6	30.3	4.0	8:30	0.7	31.9	4.4	6:00	0.8	35.0
4.0									4.1	9:00	0.7	34.3				
4.1									4.1	9:30	0.7	36.1	4.5	6:30	0.8	39.6
4.2									4.2	10:00	0.7	38.8	4.5	7:00	0.8	41.6
4.3													4.6	7:30	0.8	44.5
4.4													4.7	8:30	0.8	47.6
4.5													4.7	9:00	0.9	49.8
4.6													4.8	9:30	0.9	53.2
4.7													4.8	10:00	0.9	55.5

## In vivo liver



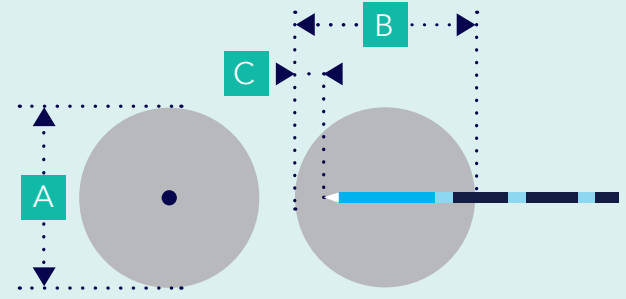
Ablation width	45W				75W				100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
2.3					2.6	1:30	0.2	7.2	2.7	1:00	0.2	7.5				
2.4	2.5	2:30	0.2	7.5												
2.5	2.6	3:00	0.2	8.5	2.8	2:00	0.3	9.2								
2.6	2.7	3:30	0.2	9.6					3.0	1:30	0.3	10.6				
2.7	2.8	4:30	0.3	10.7	2.9	2:30	0.3	11.1								
2.8	3.0	6:00	0.3	12.3	3.1	3:00	0.3	12.7	3.2	2:00	0.4	13.1	3.5	1:00	0.5	14.4
2.9	3.1	8:00	0.4	13.7	3.2	4:00	0.4	14.1	3.3	2:30	0.4	14.5				
3.0	3.2	10:00	0.4	15.1	3.3	4:30	0.4	15.6	3.4	3:00	0.5	16.0				
3.1					3.4	6:00	0.5	17.1	3.5	3:30	0.5	17.6	3.7	1:30	0.6	18.6
3.2					3.6	8:30	0.5	19.3	3.7	4:30	0.5	19.8	3.9	2:00	0.6	20.9
3.3					3.6	10:00	0.5	20.5	3.8	5:30	0.6	21.7				
3.4									3.9	7:30	0.6	23.6	4.1	2:30	0.7	24.8
3.5									4.0	10:00	0.7	25.7	4.2	3:00	0.7	26.9
3.6													4.3	3:30	0.7	29.2
3.7													4.5	4:30	0.8	32.3
3.8													4.6	6:00	0.8	34.8
3.9													4.7	8:00	0.9	37.4
4.0													4.8	10:00	0.9	40.2

## Ex vivo kidney



Ablation width	45W				75W				100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
1.6					1.8	1:00	0.1	2.4								
1.8									2.0	0:45	0.2	3.4				
1.9					2.1	1:30	0.2	4.0	2.2	1:00	0.2	4.2				
2.0	2.0	2:30	0.2	4.2												
2.1					2.3	2:00	0.2	5.3								
2.2	2.2	3:00	0.2	5.6					2.4	1:30	0.2	6.1				
2.3	2.3	3:30	0.2	6.4	2.5	2:30	0.3	6.9								
2.4									2.6	2:00	0.3	7.8				
2.5	2.4	4:00	0.3	7.9	2.6	3:00	0.3	8.5					2.9	1:00	0.3	9.5
2.6	2.6	4:30	0.3	9.2					2.8	2:30	0.3	9.9				
2.7	2.7	5:00	0.3	10.3	2.8	3:30	0.3	10.7								
2.8	2.8	5:30	0.3	11.5	2.9	4:00	0.3	11.9	3.0	3:00	0.4	12.3	3.2	1:30	0.4	13.1
2.9	2.9	6:30	0.3	12.8	3.0	4:30	0.4	13.2								
3.0	3.0	7:00	0.4	14.1	3.1	5:00	0.4	14.6	3.1	3:30	0.4	14.6	3.4	2:00	0.4	16.0
3.1	3.1	8:00	0.4	15.6	3.2	5:30	0.4	16.1	3.3	4:00	0.4	16.6				
3.2	3.2	9:00	0.4	17.2	3.3	6:00	0.4	17.7	3.4	4:30	0.4	18.2	3.6	2:30	0.5	19.3
3.3	3.3	10:00	0.4	18.8	3.4	6:30	0.4	19.4	3.5	5:00	0.4	20.0				
3.4					3.5	7:30	0.4	21.2	3.6	5:30	0.5	21.8	3.8	3:00	0.5	23.0
3.5					3.6	8:30	0.5	23.1	3.7	6:00	0.5	23.7				
3.6					3.7	9:30	0.5	25.1	3.7	6:30	0.5	25.1	3.9	3:30	0.5	26.5
3.7					3.8	10:00	0.5	27.2	3.9	7:30	0.5	28.0	4.0	4:00	0.5	28.7
3.8									4.0	8:30	0.5	30.2	4.1	4:30	0.6	31.0
3.9									4.1	9:30	0.6	32.7	4.2	5:00	0.6	33.4
4.0									4.1	10:00	0.6	34.3	4.3	5:30	0.6	36.0
4.1													4.4	6:00	0.6	38.7
4.2													4.5	6:30	0.6	41.6
4.3													4.6	7:30	0.7	44.5
4.4													4.7	8:30	0.7	47.6
4.5													4.8	9:30	0.7	50.9
4.6													4.9	10:00	0.7	54.3

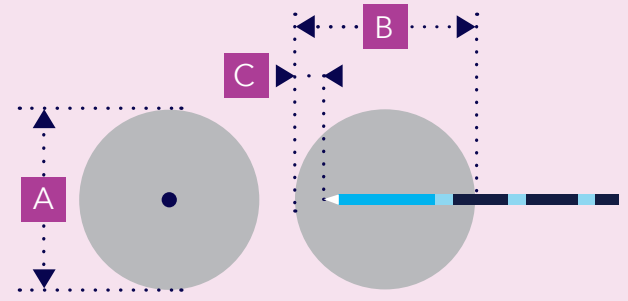
## In vivo kidney



Ablation width	100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
2.4					3.0	1:00	0.3	9.0
2.7	3.2	2:30	0.4	12.2	3.3	1:30	0.4	12.6
2.9	3.3	3:00	0.4	14.5	3.5	2:00	0.5	15.4
3.0	3.3	3:30	0.4	15.6				
3.1	3.4	4:00	0.4	17.1	3.6	2:30	0.5	18.1
3.2	3.5	5:00	0.5	18.8	3.7	3:00	0.5	19.8
3.3	3.6	6:00	0.5	20.5	3.8	3:30	0.6	21.7
3.4	3.7	7:30	0.5	22.4	3.0	4:00	0.6	23.6
3.5	3.7	9:30	0.5	23.7	3.9	4:30	0.6	25.0
3.6	3.8	10:00	0.5	25.8	4.0	5:30	0.6	27.1
3.7					4.1	6:30	0.6	29.4
3.8					4.2	8:00	0.7	31.8
3.9					4.2	10:00	0.7	33.4

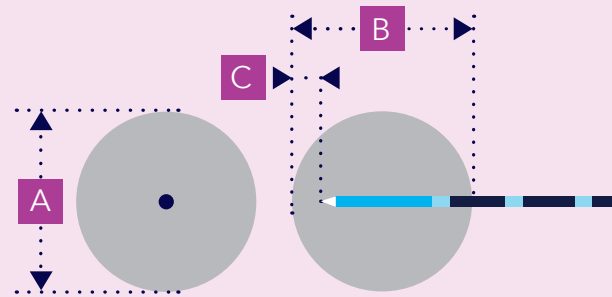
Please refer to the instructions for use for complete product use information.

## Ex vivo lung



Ablation width	45W				75W				100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
1.7	2.5	2:30	0.2	3.6	2.6	1:30	0.2	3.8								
1.8									2.7	1:00	0.2	4.7				
1.9	2.6	3:00	0.2	4.9	2.8	2:00	0.2	5.3								
2.0	2.7	3:30	0.2	5.5					2.9	1:30	0.3	5.9				
2.1	2.8	4:00	0.2	6.5	2.9	2:30	0.3	6.7								
2.2	2.9	4:30	0.3	7.5	3.1	3:00	0.3	8.0	3.1	2:00	0.3	8.3				
2.4	2.9	5:00	0.3	9.0	3.2	3:30	0.3	10.0	3.3	2:30	0.3	10.3	3.4	1:00	0.3	10.6
2.5	3.0	6:00	0.3	10.1	3.3	4:00	0.3	11.1	3.5	3:00	0.4	11.8				
2.6	3.1	6:30	0.3	11.2	3.3	4:30	0.3	11.9					3.7	1:30	0.4	13.4
2.7	3.1	7:00	0.3	11.9	3.4	5:00	0.3	13.1	3.6	3:30	0.4	13.8				
2.8	3.1	7:30	0.3	12.6	3.5	5:30	0.4	14.2	3.7	4:00	0.4	15.0	3.9	2:00	0.4	15.9
2.9	3.2	8:30	0.3	14.4	3.5	6:00	0.4	15.7	3.7	4:30	0.4	16.6				
3.0	3.2	9:30	0.3	15.0	3.5	6:30	0.4	16.4	3.8	5:00	0.4	17.8	4.1	2:30	0.5	19.2
3.1	3.3	10:00	0.3	16.7	3.6	7:00	0.4	18.2	3.8	5:30	0.4	19.2	4.2	3:00	0.5	21.3
3.2					3.6	8:00	0.4	18.8	3.9	6:00	0.4	20.3				
3.3					3.7	8:30	0.4	21.1	3.9	6:30	0.4	22.2	4.3	3:30	0.5	24.5
3.4					3.7	9:30	0.4	22.8	4.0	7:00	0.4	24.7	4.4	4:00	0.5	27.2
3.5					3.7	10:00	0.4	23.7	4.0	8:00	0.4	25.7	4.5	4:30	0.5	28.9
3.6									4.1	8:30	0.5	27.1	4.6	5:00	0.5	30.4
3.7									4.1	9:30	0.5	28.9	4.6	5:30	0.5	32.4
3.8									4.1	10:00	0.5	30.5	4.7	6:00	0.6	35.0
3.9													4.7	6:30	0.6	36.8
4.0													4.7	7:00	0.6	40.1
4.1													4.8	7:30	0.6	42.6
4.2													4.8	8:30	0.6	44.1
4.3													4.9	9:30	0.6	47.9
4.4													4.9	10:00	0.6	50.6

## In vivo lung



Ablation width	45W				75W				100W				150W			
A (cm)	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )	B (cm)	Time (MM:SS)	C (cm)	Vol. (cm <sup>3</sup> )
2.8	3.3	2:30	0.2	13.5												
2.9	3.3	3:00	0.2	14.5	3.5	1:30	0.3	15.4	3.7	1:00	0.3	16.3				
3.0	3.4	4:30	0.3	16.0												
3.1	3.5	7:00	0.3	17.6	3.7	2:00	0.3	18.6								
3.2	3.5	10:00	0.3	18.8	3.8	3:00	0.3	20.4	3.9	1:30	0.3	20.9				
3.3					3.8	4:00	0.3	21.7	4.1	2:00	0.4	23.4				
3.4					3.9	6:00	0.3	23.6	4.1	2:30	0.4	24.8	4.5	1:00	0.4	27.2
3.5					4.9	10:00	0.4	25.7	4.2	3:30	0.4	26.9				
3.6									4.3	4:30	0.4	29.2				
3.7									4.3	7:30	0.4	30.8	4.7	1:30	0.5	33.7
3.8									4.4	10:00	0.4	33.3	4.8	2:00	0.5	36.3
4.0													5.0	3:00	0.5	41.9
4.1													5.0	4:00	0.5	44.0
4.2													5.1	6:30	0.5	47.1
4.3													5.2	10:00	0.5	50.3

Please refer to the instructions for use for complete product use information.

### References:

Based on internal testing data, RE00195433 Rev A Emprint™ CAGENHP Ablation Size Evaluation Report, dated April 2019 (Data on file)

PT00109241 Emprint™ Ablation Antenna Instructions for Use

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