

WITH A FOCUS
ON **SELECTIVE**
TISSUE
PROTECTION

Principle of Operation

Ultrasonic surgery is realized between 20-60 kHz. In principle, the outlet voltage is supplied at 50 to 60 hertz. The generator boosts the frequency to 26-36 K hertz. The resulting ultrasonic frequency is delivered into the hand-piece and amplified to the motion. After activation, the probe can vibrate 26.000-36.000 strokes per second and results in cavitation. The low frequency ultrasonic energy has ability to disintegrate several types of benign or malignant tumors without any harming healthy cells.

1) Selectively killing cancer cells

Macadam™ Ultrasonic Surgical Cavitation System selectively removes tissue based on their physical properties such as size, cell-wall thickness and size of the organelles within them while controlling the close bile ducts, arteries and vessels to the removing tissue. The studies indicated that differences between tissue strength of benign or malignant tumors and healthy cells can affect how they responses to ultrasonic frequency and how the oscillations trigger cell death. At the tip of the probe, controlled pulsed energy and reserve power creates are bound effect while the tip reaches a structure that has rich collagen composition. Due to the tactile feedback mechanism surgeons could differentiate targeted benign or malignant tumors and other structures and control the probe before harming healthy tissue.¹

2) Less bleeding

Macadam™ Ultrasonic Surgical Cavitation System has also contributed to reduction in blood loss during surgical operation. It is indicated in a liver transection clinical study that these include better delineation of the transection plane with the use of intraoperative ultrasound, and better inflow and outflow control. Inflow occlusion and low central venous pressure anesthesia have been widely used to reduce bleeding from inflow vessels and hepatic veins in the transection surface. This article reviews the current techniques of liver transection and evidence from the literature on the efficacy of different techniques.²

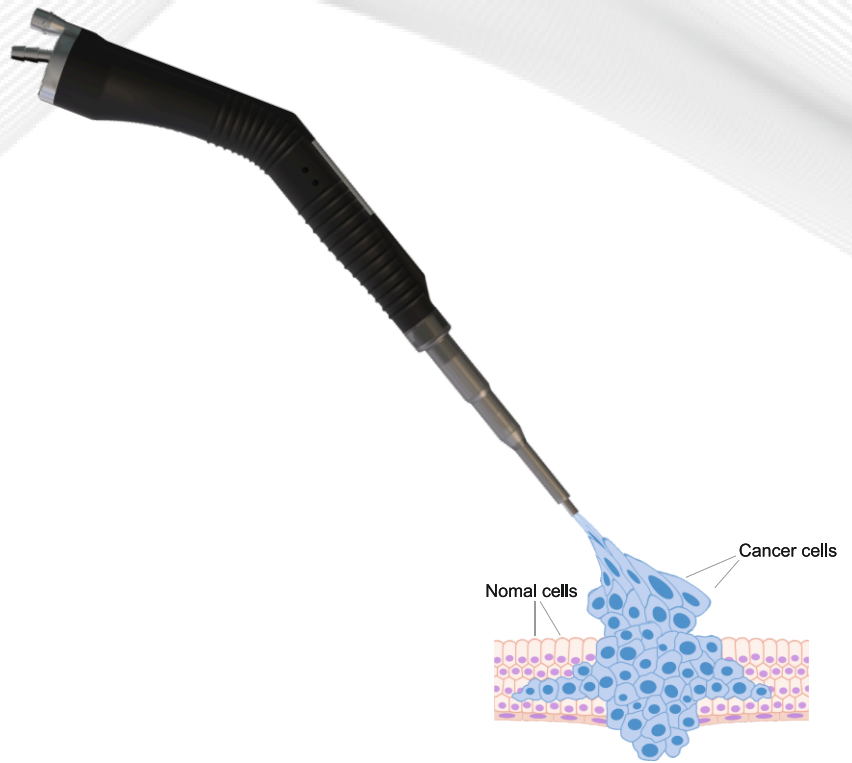
²Poon RT. Current techniques of liver transection. HPB (Oxford). 2007;9(3):166-173.

3) Versatile

Macadam™ Ultrasonic Surgical Cavitation System offers a wide range of choices of tips for different procedures;

The high amplitude of the 26 kHz frequency handpiece provides in a compact design engineered for ablation of soft tissues and deeper tissue penetration for advanced resection speed.

The 36kHz frequency handpiece which combines high performance with flexibility is designed for tough and fibrous tissue removal. The reduced amplitude of the 36 kHz frequency handpiece delivers a more concentrated and controlled effect while the risk of collateral consequence is minimized.



Indications

Macadam™ Ultrasonic Surgical Cavitation System is indicated for use in surgical procedures where fragmentation, emulsification resection and aspiration of soft and hard tissues are required in the following surgeries: including Neurosurgery, Gastrointestinal and affiliated organ surgery, Urological surgery, Plastic and Reconstructive surgery, General surgery, Orthopedic surgery, Gynecological surgery, Thoracic surgery, Laparoscopic surgery and Thoracoscopic surgery. Gastrointestinal and Affiliated Organ Surgery - including removal of benign or malignant tumors or other unwanted tissue, including hepatic parenchyma, in open or laparoscopic procedures, hepatic resection, tumor resection, lobectomy or trisegmentectomy, or removal of tissue during liver allotransplantation and donor hepatectomy. Urological surgery - including removal of renal parenchyma during nephrectomy or partial nephrectomy. General Surgery - including removal of benign or malignant tumors or other unwanted soft tissue in open or minimally invasive general surgical procedures. Plastic and Reconstructive surgery- LipoSculpture (subcutaneous fatty tissue for aesthetic body contouring). Laparoscopic Surgery - including removal of hepatic parenchyma in laparoscopic hepatic resection, lobectomy or trisegmentectomy, in laparoscopic donor hepatectomy or laparoscopic cholecystectomy or laparoscopic pancreatic jejunostomy, or pancreatectomy, or laparoscopic appendectomy, laparoscopic colon resection or laparoscopic partial gastrectomy.

Serum Hanger



Foot Switch Duo



Canister Set with Tubing



Probe / Tip



Handle



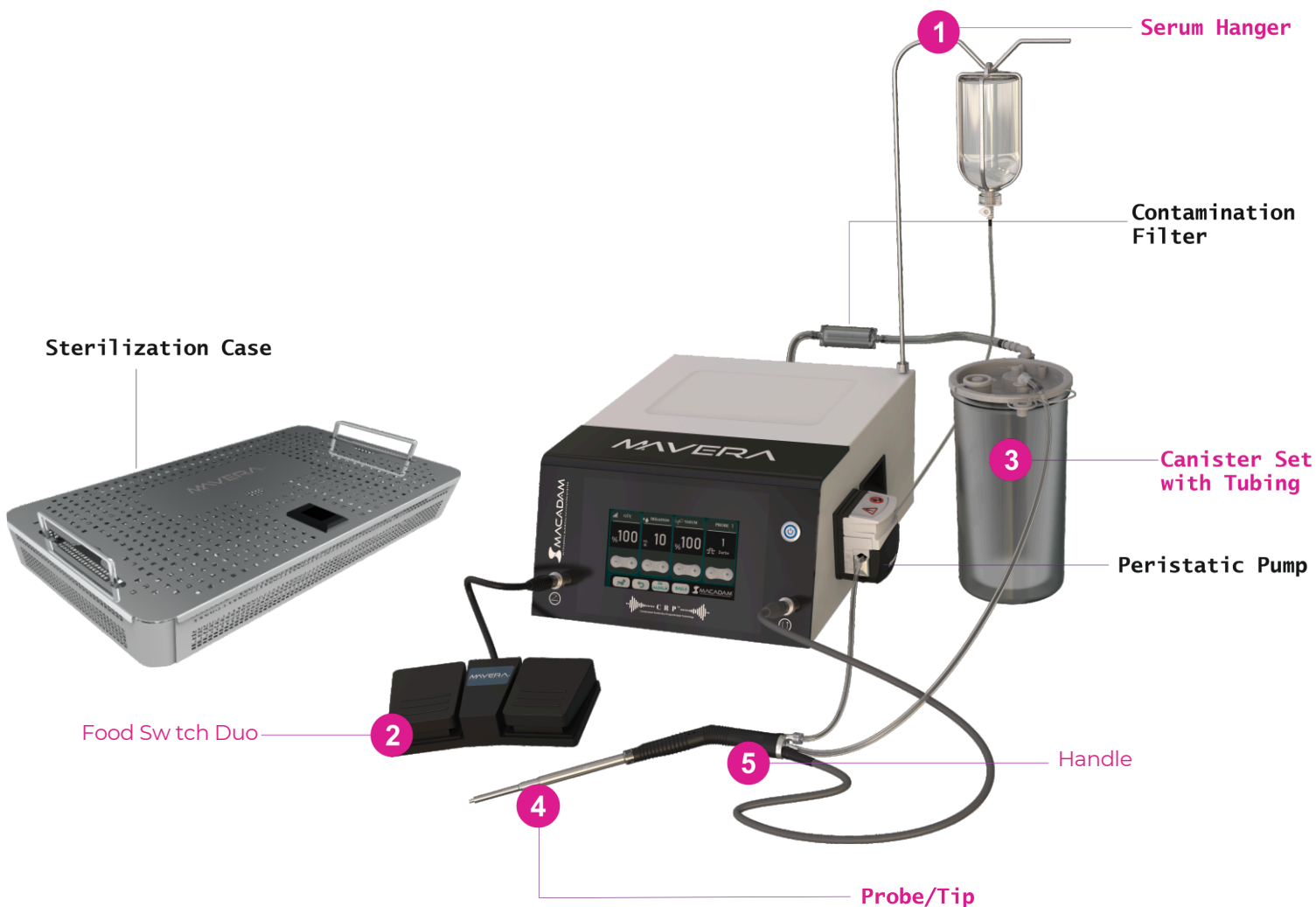
"A superior surgical method going beyond just 'ablate' the benign or malignant tumors."

Macadam™ Ultrasonic Surgical Cavitation System: A Revolutionary Device Offering Better Result

- *Selectively killing cancer cells*
- *Less bleeding*
- *Versatile*

Mechanism of Action

Macadam™ Ultrasonic Surgical Cavitation System is indicated for use in surgical procedures where fragmentation, emulsification resection and aspiration of soft and hard tissues are required in the following surgeries: including Neurosurgery, Gastrointestinal and affiliated organ surgery, Urological surgery, Plastic and Reconstructive surgery, General surgery, Orthopedic surgery, Gynecological surgery, Thoracic surgery, Laparoscopic surgery and Thoracoscopic surgery. Gastrointestinal and Affiliated Organ Surgery - including removal of benign or malignant tumors or other unwanted tissue, including hepatic parenchyma, in open or laparoscopic procedures, hepatic resection, tumor resection, lobectomy or trisegmentectomy, or removal of tissue during liver allotransplantation and donor hepatectomy. Urological surgery - including removal of renal parenchyma during nephrectomy or partial nephrectomy. General Surgery - including removal of benign or malignant tumors or other unwanted soft tissue in open or minimally invasive general surgical procedures. Plastic and Reconstructive surgery- LipoSculpture (subcutaneous fatty tissue for aesthetic body contouring). Laparoscopic Surgery - including removal of hepatic parenchyma in laparoscopic hepatic resection, lobectomy or trisegmentectomy, in laparoscopic donor hepatectomy or laparoscopic cholecystectomy or laparoscopic pancreatic jejunostomy, or pancreatectomy, or laparoscopic appendectomy, laparoscopic colon resection or laparoscopic partial gastrectomy.





Tip Guide

PRODUCT DEFINITION	REFERENCE	PROBE LENGTH	ACTIVE LENGTH	KHz	ØD	ID
Surgical Tip I		70 mm	22 mm	36	Ø3.42 mm	Ø1.5 mm
Surgical Tip II		70 mm	35 mm	36	Ø2.88 mm	Ø1.5 mm
Surgical Tip III		115.5 mm	45 mm	26	Ø5.1 mm	Ø2 mm
Surgical Tip IV		145.8 mm	33.8 mm	36	Ø3.48 mm	Ø2 mm
Surgical Tip V		145.8 mm	33.8 mm	36	Ø3.48 mm	Ø2 mm
Surgical Tip VI		145.6 mm	30.6 mm	36	Ø4.5 mm	Ø2 mm
Surgical Tip VII		158 mm	31.3 mm	36	Ø5.1 mm	Ø2 mm
Surgical Tip VIII		157 mm	29 mm	36	Ø5.1 mm	Ø2 mm

Straight, Hard

Straight, Soft

PRODUCT DEFINITION	REFERENCE	PROBE LENGTH	ACTIVE LENGTH	KHz	OD	ID
Surgical Tip IX 	MCM-STIX-S 	160,8 mm	38.3 mm	36	Ø3.58 mm	Ø3 mm
Surgical Tip X 	MCM-STX-S 	223 mm	31.7 mm	36	Ø4 mm	Ø1.5 mm
Surgical Tip XI 	MCM-STXI-S 	71.3 mm	34.8 mm	36	Ø2.8 mm	Ø2 mm
Surgical Tip XII 	MCM-STXII-S 	73.1 mm	24 mm	36	Ø2.7 mm	Ø2 mm
Surgical Tip XIII 	MCM-STXIII-S 	102 mm	79 mm	26	Ø3.8 mm	Ø2 mm
Surgical Tip XIV 	MCM-STXIV-S 	108.5 mm	50.5 mm	26	Ø2.7 mm	Ø2 mm
Surgical Tip XV 	MCM-STXV-S 	108.9 mm	34.5 mm	26	Ø2.6 mm	Ø2 mm
Surgical Tip XVI 	MCM-STXVI-S 	115 mm	46.5 mm	26	Ø3.3 mm	Ø2 mm
Surgical Tip XVII 	MCM-STXVII-S 	117 mm	41.6 mm	26	Ø2.8 mm	Ø2 mm



Mavera
Foot Switch Duo



Mavera
Serum Hanger



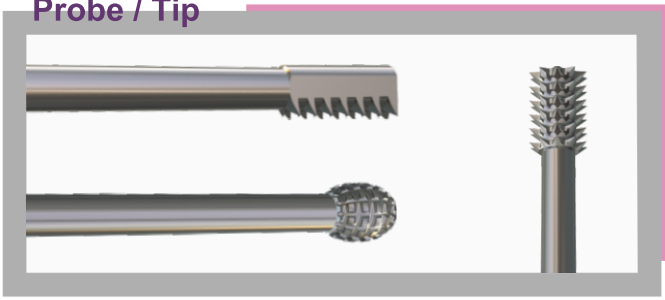
Mavera
Canister Set with Tubing



Mavera
Sterilization Case

Probe / Tip

... with a focus on
selective tissue
protection



PRODUCT DEFINITION	REFERENCE		PROBE LENGTH	ACTIVE LENGTH	KHz	OD	ID
Surgical Tip XVIII			120.5 mm	50 mm	26	Ø2.5 mm	Ø2 mm
	MCM-STXVIII-S						
Surgical Tip XIX			120.5 mm	36.6 mm	26	Ø2.5 mm	Ø1.5 mm
	MCM-STXIX-S						
Surgical Tip XX			125 mm	27.2 mm	36	Ø2.8 mm	Ø2 mm
	MCM-STXX-S						
Surgical Tip XXI			125 mm	50 mm	23	Ø2.8 mm	Ø2 mm
	MCM-STXXI-S						
Surgical Tip XXII			126.5 mm	36.7 mm	26	Ø2.6 mm	Ø2 mm
	MCM-STXXII-S						
Surgical Tip XXIII			145.8 mm	31.7 mm	36	Ø2.8 mm	Ø1 mm
	MCM-STXXIII-S						
Surgical Tip XXIV			151.8 mm	31.2 mm	36	Ø2.9 mm	Ø2 mm
	MCM-STXXIV-S						
Surgical Tip XXV			150.8 mm	32.7 mm	36	Ø3.1 mm	Ø2 mm
	MCM-STXXV-S						
Surgical Tip XXVI			160.8 mm	38.3 mm	36	Ø2.7 mm	Ø2 mm
	MCM-STXXVI-S						

PRODUCT DEFINITION	REFERENCE	PROBE LENGTH	ACTIVE LENGTH	KHz	OD	ID
Surgical Tip XXVII	MCM-STXXVII-S	160.8 mm	38.3 mm	36	Ø3.5 mm	Ø3 mm
Surgical Tip XXVIII	MCM-STXXVIII-S	162.4 mm	32.7 mm	36	Ø2.3 mm	Ø1.5 mm
Surgical Tip XXIX	MCM-STXXIX-S	196 mm	35.6 mm	36	Ø2.6 mm	Ø2 mm
Surgical Tip XXX	MCM-STXXX-S	222 mm	39.2 mm	36	Ø2.8 mm	Ø2 mm
Surgical Tip XXXI	MCM-STXXXI-S	223 mm	32 mm	36	Ø2.5 mm	Ø1.5 mm
Surgical Tip XXXII	MCM-STXXXII-S	231 mm	36 mm	36	Ø2 mm	Ø1.5 mm
Surgical Tip XXXIII	MCM-STXXXIII-S	354 mm	35.5 mm	36	Ø2.1 mm	Ø1.5 mm



Straight Handpiece

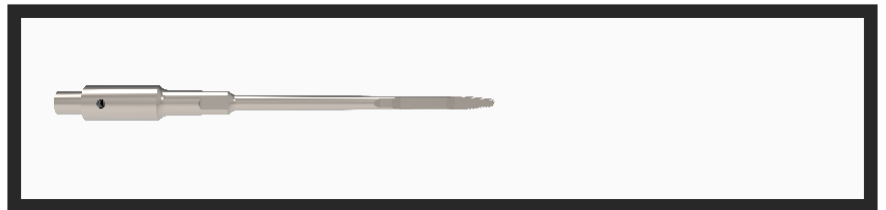
Macadam™
Ultrasonic Surgical Cavitation
System, offers a wide range of
choices of tips for different
procedures;

Curved, Soft

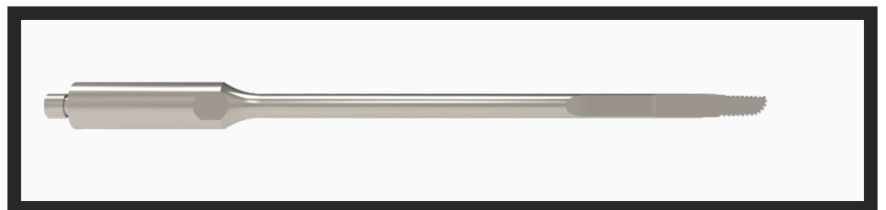
Straight, Fibrous

PRODUCT DEFINITION	REFERENCE	PROBE LENGTH	ACTIVE LENGTH	KHz	OD	ID
Surgical Tip XXXIV	MCM-STXXXIV-S	137.4 mm	33.4 mm	26	Ø2.2 mm	Ø1.5 mm
Surgical Tip XXXV	MCM-STXXXV-S	137.4 mm	33.4 mm	26	Ø2.7 mm	Ø2 mm
Surgical Tip XXXVI	MCM-STXXXVI-S	137.7 mm	36 mm	36	Ø2.7 mm	Ø2 mm
Surgical Tip XXXVII	MCM-STXXXVII-S	228 mm	34 mm	36	Ø2.1 mm	Ø1.5 mm
Surgical Tip XXXVIII	MCM-STXXXVIII-S	218.9 mm	39.1 mm	36	Ø2.8 mm	Ø2 mm
Surgical Tip XLIX	MCM-STXLIX-S	159.8 mm	31 mm	26	Ø2.8 mm	Ø2 mm
Surgical Tip XXXIX	MCM-STXXXIX-S	222 mm	39.2 mm	26	Ø2.6 mm	Ø2 mm

PRODUCT DEFINITION Surgical Tip XLIV
REFERENCE MCM-STXLIV-S
PROBE LENGTH 77.6 mm
KHz : 36
ACTIVE LENGTH 45.6 mm
ID : Ø1.5 mm
OD : -

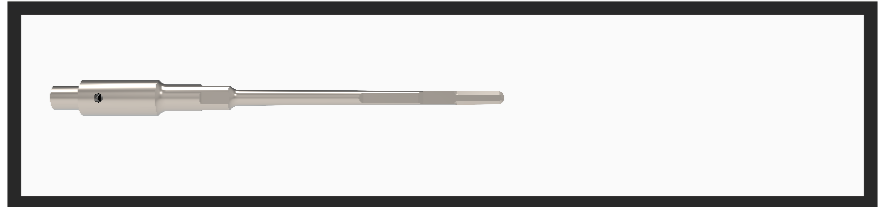


PRODUCT DEFINITION Surgical Tip XLV
REFERENCE MCM-STXLV-S
PROBE LENGTH 157 mm
KHz : 36
ACTIVE LENGTH 44.4 mm
OD : Ø1.5 mm
ID : -

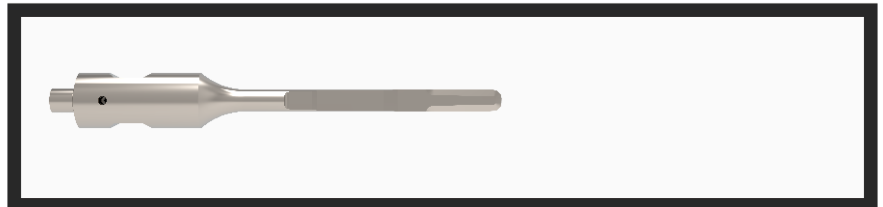


PRODUCT DEFINITION	REFERENCE	PROBE LENGTH	ACTIVE LENGTH	KHz	OD	ID
Surgical Tip XL	MCM-STXL-S	137.7 mm	33.6 mm	26	Ø2.7 mm	Ø1.5 mm
Surgical Tip XLI	MCM-STXLI-S	137.5 mm	33 mm	26	Ø2.7 mm	Ø2 mm
Surgical Tip XLII	MCM-STXLII-S	228.1 mm	34 mm	36	Ø2 mm	Ø1.5 mm
Surgical Tip XLIII	MCM-STXLIII-S	219.1 mm	38.5 mm	36	Ø2.7 mm	Ø2 mm
Surgical Tip L	MCM-STL-S	228.1 mm	34 mm	36	Ø2.8 mm	Ø1.5 mm

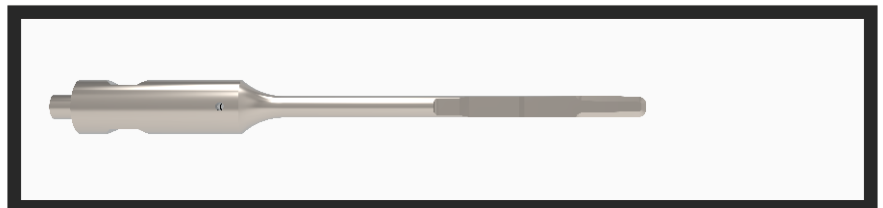
PRODUCT DEFINITION Surgical Tip XLVI
REFERENCE MCM-STXLVI-S
PROBE LENGTH 77.6 mm
KHz : 36
ACTIVE LENGTH 45.6 mm
ID : Ø1.5 mm
OD : -



PRODUCT DEFINITION Surgical Tip XLVII
REFERENCE MCM-STXLVII-S
PROBE LENGTH 79.9 mm
KHz : 36
ACTIVE LENGTH 45.6 mm
ID : Ø1.5 mm
OD : -



PRODUCT DEFINITION Surgical Tip XLVIII
REFERENCE MCM-STXLVIII-S
PROBE LENGTH 111.4 mm
KHz : 26
ACTIVE LENGTH 68.1 mm
ID : Ø1.5 mm
OD : -



BRAND	PRODUCT DEFINITION	REF#
MacAdam™	Ultrasonic Generator	MCM-USG02-N
MacAdam™	Handpiece 36 kHz Aspiration	MCM-UPHS9-N
MacAdam™	Handpiece 36 kHz Cutting	MCM-UPHS11-N
MacAdam™	Handpiece 26 kHz Aspiration	MCM-UPHS14-N
MacAdam™	Handpiece 26 kHz Cutting	MCM-UPHS13-N
MacAdam™	Handpiece Angled Slim 36 kHz Aspiration	MCM-UPHS10-N
MacAdam™	Counter Wrench + Wrench	MCM-PTT01-N
MacAdam™	Foot Switch Duo	MCM-FTS02-N
MacAdam™	Serum Hanger	MCM-SHA01-N
MacAdam™	Sterilization Case II	MCM-STE02-N
MacAdam™	Carry Luggage (Tough Case Foam Supported)	MCM-LGG01

MCM-UPHS9-N



Compatible With

- MCM-STXXV-S
- MCM-STXXVI-S
- MCM-STXXVII-S
- MCM-STXXVIII-S
- MCM-STXXIX-S
- MCM-STXXX-S
- MCM-STXXXI-S
- MCM-STXXXII-S
- MCM-STXXXIII-S
- MCM-STXXXVI-S
- MCM-STXXXVII-S
- MCM-STXXXVIII-S
- MCM-STXII-S
- MCM-STXLII-S
- MCM-STXLIII-S
- MCM-STIV-S
- MCM-STV-S
- MCM-STVI-S
- MCM-STVII-S
- MCM-STVIII-S
- MCM-STIX-S
- MCM-STX-S
- MCM-STXLIV-S
- MCM-STL-S

MAVERA[®]
 medical devices
 BEYOND FROM WITHIN

MCM-UPHS10-N



Compatible With

- MCM-STXI-S
- MCM-STXXIII-S
- MCM-STXXIV-S
- MCM-STI-S
- MCM-STII-S
- MCM-STXLVI-S
- MCM-STXVII-S
- MCM-STXXI-S
- MCM-STXX-S

MCM-UPHS11-N



Compatible With

- MCM-STXLV-S
- MCM-STXLVII-S

MCM-UPHS13-N



Compatible With

- MCM-STXLVIII-S

MCM-UPHS14-N



Compatible With

- MCM-STXIII-S
- MCM-STXIV-S
- MCM-STXV-S
- MCM-STXVI-S
- MCM-STXVIII-S
- MCM-STXIX-S
- MCM-STXXII-S
- MCM-STXXXIV-S
- MCM-STXXXV-S
- MCM-STXXXIX-S
- MCM-STXL-S
- MCM-STXLI-S
- MCM-STXXXIX-S
- MCM-STIII-S
- MCM-STXLIX-S

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U.S. and foreign patents pending
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HDS0620-EN-Rev02
Printed in Turkey

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2803