

# ELECTROSURGICAL UNIT

USER-FRIENDLY, RELIABLE, HIGH QUALITY



THE QUALITY OF SURGERY, WE CARE



KAVANDISH SYSTEM



## **KAVANDISH SYSTEM ENG. CO.**

Proudly presents its State-of-the-Art, Reliable  
and User-friendly Electrosurgical Units



## ABOUT US



Kavandish was established in 1995, Kavandish System initiated its activities to design and manufacture medical devices. Today, Kavandish System has found its appropriate place as a science-based engineering company in the field of electrosurgical units in domestic and international markets.

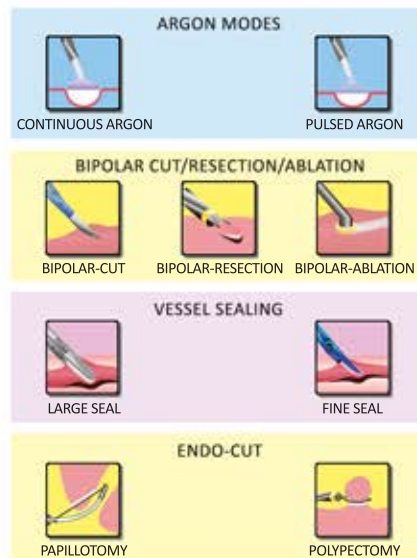
Generally, the Kavandish system's success is attributed to:

- Conformity with international requirements related to quality management systems and CE certification. All products are designed and manufactured to meet the highest standards related to electrosurgical units: **IEC60601-1, IEC60601-1-2, IEC60601-2-2.**
- Having a team of experienced and knowledgeable personnel, who are up-to-date on the latest technological advances throughout the world.



## FEATURES:

- Monopolar Cut (Pure)
- Monopolar Cut (Blend1)
- Monopolar Cut (Blend2)
- Monopolar Cut (Blend3)
- Monopolar Coagulation (Swift)
- Monopolar Coagulation (Forced)
- Monopolar Coagulation (Spray)
- Monopolar Coagulation (Soft)
- Continuous Argon Plasma Coagulation
- Pulsed Argon Plasma Coagulation
- Bipolar Cut
- Bipolar Resection /TUR (Optional)
- Bipolar Ablation (Optional)
- Bipolar Coagulation (Auto-start Bipolar & Manual Bipolar)
- Large Seal (Optional)
- Fine Seal (Optional)
- Special EndoCut modes (Papillotomy & Polypectomy) for endoscopic treatments (Optional)



### BIPOLAR TUR/ BIPOLAR RESECTION

Now you can benefit Bipolar TUR advantages compared to monopolar TUR.

The main advantage is that as bipolar resectoscopes use physiological saline for irrigation, the risk of "TUR syndrome" is eliminated.

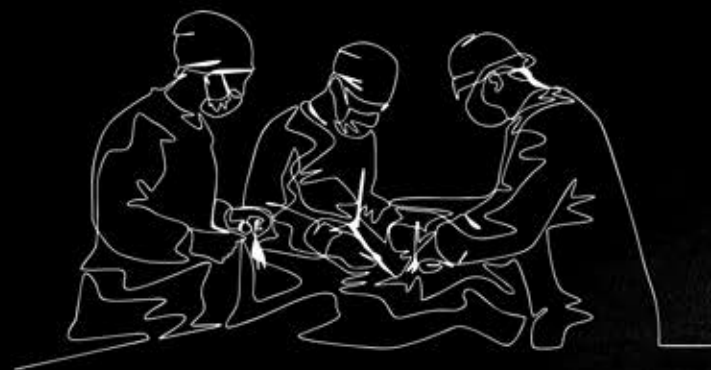
This mode is particularly recommended for procedures performed on patients with pace makers. Because the active and return electrodes are placed in the resectoscope, high current densities are achieved locally and distant adverse effects are reduced.



### BIPOLAR ABLATION

Bipolar ablation replaces standard monopolar cutting with a cold ablative process in normal saline that produces molecular dissociation, cell disintegration and volumetric tissue removal with little collateral damage to soft tissues. As the current does not pass directly through the fabric during the process, the heating is minimal in comparison with the standard electrosurgical modes.

This mode is useful in orthopedic surgeries, tonsillectomy, adenoidectomy, etc.



# ICONIC Image1

Our latest ESU built on Iconic family platform, provides the most user friendly interface, to integrate reliability, safety and convenience.

Image1 is an all-in-one electrosurgical generator, suitable for all operative procedures including Vessel Sealing, Argon Plasma Coagulation, TUR, etc.

- Two separate capacitive touchscreen displays for Monopolar and Bipolar
- Advanced user interface design
- Permanent HF Electrosurgical Leakage Current monitoring
- Auto Stop mode for optimum tissue Coagulation
- Permits two surgeons to coagulate at the same time independently in Spray mode
- Possibility of connecting independent Monopolar & Bipolar foot switches
- 30 programmable memory locations
- Special capability for IVF Surgery

**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)

**Maximum Power Consumption:** 800 V.A

**Protection Class:** Class I

**Type of Output:** CF

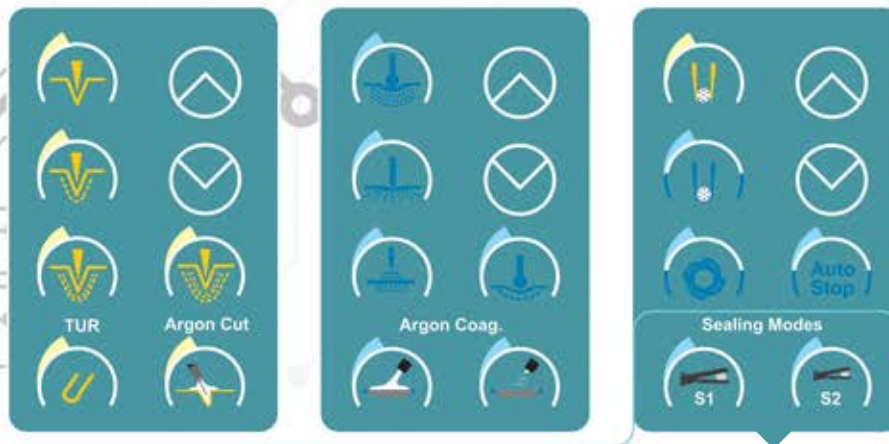
**Weight:** 9.0 kg

**Dimensions (W.H.D):** 44 x 17 x 40 cm



## FEATURES:

- Argon Plasma Coagulation (Continues Output)
- Argon Plasma Coagulation (Pulsed Output)
- Argon Cut
- Bipolar Cut
- Bipolar TUR Mode (Optional)
- Bipolar Coagulation (Auto-start Bipolar & Manual Bipolar)
- Monopolar Cut (Pure)
- Monopolar Cut (Blend1)
- Monopolar Cut (Blend2)
- Monopolar Cut (Blend3)
- Monopolar Coagulation (Swift)
- Monopolar Coagulation (Forced)
- Monopolar Coagulation (Spray)
- Monopolar Coagulation (Soft)
- Monopolar TUR Mode
- Vessel Sealing (in IS410S)



### VESSEL SEALING SYSTEM (OPTIONAL)

- Two vessel sealing modes optimized for different types of sealing instruments.
- Capability of reliable sealing of large vessels and tissue bundles, up to 7 mm in diameter.





# ICONIC-IS410/ IS410S

- Automatic Self Checking (Spotting the system's internal problems)
- Permanent HF Electrosurgical Leakage current monitoring
- Auto Stop Mode for Optimum tissue Coagulation (Preventing tissue Carbonization)
- Permits two surgeons to coagulate at the same time independently in Spray Mode
- Possibility of connecting independent Monopolar & Bipolar foot switches
- 30 Programmable memory locations
- **Special capability for IVF Surgery**

**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)

**Maximum Power Consumption:** 800 V.A

**Protection Class:** Class I

**Type of Output:** CF

**Weight:** 8.3 kg

**Dimensions (W.H.D):** 40 x 17 x 44 cm



# ARGON PLASMA SUPPLIER

## ADVANTAGES OF ARGON PLASMA:

- Faster and more efficient coagulation
- Less tissue damage
- Flexible eschar creation on tissue surface
- Limited coagulation depth resulting in minimum perforation risk
- Uniform wide-area coagulation
- Less smoke, no unpleasant odors
- Less risks of infection
- Non-contact coagulation, no adhesion between tissue and applicator
- Highly efficient for bones, cartilage, ligaments and external membranes of organs

## USER INTERFACE

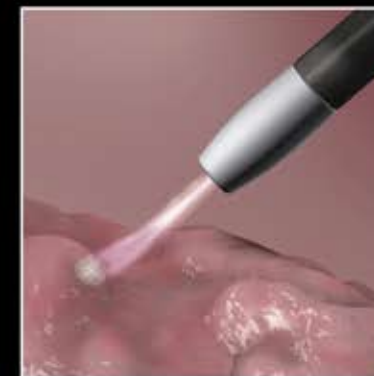
- High bright vacuum fluorescent display (VFD), 256x64 resolution
- Interactive menu on display
- Cylinder pressure monitoring
- Intelligent Alarm System

## CONTROLS

- Flow adjustment from 0 to 10 L/min at 0.1 L/min steps
- 2 operating modes: Argon Cut, Argon Coagulation
- Concurrent Activation with ESU by footswitch
- Purge function at 10 L/min

## SAFETY FEATURES

- Basic construction: in accordance with IEC60601-1
- Protection class: Class I
- Gas leakage detection
- Continuous gas flow monitoring
- Continuous gas pressure monitoring at device input



**Main Voltage:** 100~240 VAC, 50~60 Hz  
**Maximum Power Consumption:** 40 V.A  
**Protection Class:** Class I  
**Weight:** 5 kg  
**Dimensions (W.H.D):** 40 x 8 x 44cm





## APC APPLICATIONS IN GASTROINTESTINAL ENDOSCOPY

In addition to wide applications of APC in open surgeries, now APC has been updated for use in flexible endoscopy. Delivered through a flexible probe passed through the endoscope, this noncontact method may allow treatment of a large surface area quickly.

- Treatment for gastrointestinal bleeding associated with radiation proctopathy
- Treatment for Vascular malformations including Gastric antral vascular ectasia (GAVE syndrome), angiodysplasias, arterio-venous malformations (AVM), portal hypertensive gastropathy, teleangiectasias. APC prevents recurrent bleeding associated with these lesions
- Treatment of remnant polypoid tissue after piecemeal resection of large colonic polyps
- Palliative debulking of obstructive tumors of the esophagus, stomach, ampulla, and rectum
- Treatment of Zenker's diverticulum



(A) Esophageal cancer pre-treatment. (B) APC treatment of the tumor. (C) Esophageal cancer following treatment.

## APC IN BRONCHOSCOPY

- Hemostasis of superficial bleeding
- Ablation of benign endobronchial tumors, papillomatosis, granulomas, tracheal polyps, lipomas, hemangiomas
- Recanalization of malignant stenosis of the respiratory tract
- Stent ingrowth / overgrowth, removing proliferation of tumor tissue through the mesh of the stent



### Conventional Bipolar Coagulation:

- Continuous sine wave
- Bipolar coagulation with anti-sticking effect, without tissue carbonization
- Foot switch and auto-start (tissue sensor) activation for coagulation



### Auto-stop System for Conventional Bipolar Coagulation:

- Tissue impedance sensor switches the generator off as soon as the coagulation reaches the optimum level, before carbonization or electrode sticking
- A fully automatic bipolar coagulation with forceps is possible without foot or finger switching



## MEG 2

**MEG2** is an electrosurgical generator modified and specialized for VESSEL SEALING applications. Also conventional Bipolar coagulation with Auto-start/Auto-stop functions are provided to satisfy more needs in general surgeries.

### FEATURES:

- Vessel Sealing System plus conventional Bipolar Coagulation
- Compatible with different types of sealing accessories
- Two vessel sealing modes allowing different types of surgical processes
- Bipolar Auto-start and Auto-stop modes for optimum tissue coagulation (preventing tissue carbonization)



**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)

**Maximum Power Consumption:** 700 V.A

**Protection Class:** Class I

**Type of output:** CF

**Weight:** 6.8Kg

**Dimensions (W.H.D):** 37 x 16 x 46 cm





## FEATURES:

- Bipolar Cut
- Bipolar Coagulation (Auto-start Bipolar & Manual Bipolar)
- Monopolar Cut (Pure)
- Monopolar Cut (Blend1)
- Monopolar Cut (Blend2)
- Monopolar Cut (Blend3)
- Monopolar TUR Function
- Monopolar Coagulation (Swift)
- Monopolar Coagulation (Forced)
- Monopolar Coagulation (Spray)
- Monopolar Coagulation (Soft)
- Bipolar TUR Mode (Optional)
- Automatic Self Checking (Spotting the system's internal problems)
- Permanent HF Electrosurgical Leakage Current monitoring
- Auto Stop mode for optimum tissue Coagulation (preventing tissue Carbonization)- (Optional)
- Permits two surgeons to coagulate at the same time independently in Spray mode
- 10 programmable memory locations



TUR

At Bipolar TUR, The Bipolar output power can be increased up to 250 Watts. So Cutting in Normal Saline is available



# MEG 1

**MEG1** offers various operating modes for open surgery, as well as laparoscopy. High power for cutting initiation in TUR achieves excellent results in fluid medium in urology or arthroscopy.

Meg1 is an electrosurgical unit for general surgery, Bipolar coagulation and Bipolar cutting in saline solution.

It also offers standard monopolar cutting and coagulation modes which are necessary in conventional procedures.

**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)

**Maximum Power Consumption:** 800 V.A

**Protection Class:** Class I

**Type of output:** CF

**Weight:** 8.8Kg

**Dimensions (W.H.D):** 37 x 16 x 46 cm



# MEG 1-R

## MHz Technology for Dermatology, Plastic, Aesthetic, ENT, GYN, Ophthalmology and Dentistry

Meg1-R is a precision tool for surgeons who demand only the best results for their patients.

Meg1-R offers 'cold cutting' and coagulation of soft tissue through radio frequency output plus advanced and intelligent modes with pulsed function for maximum control ability.

The lateral heat developed into adjacent tissues, at the MHz range is significantly lower.

Higher frequency provides an excellent quality incision with minimum bleeding, quicker healing, hypertrophic scars reduction, maximum postoperative discomfort and maximum aesthetic results.

### Clinical Benefits for MHz Technology

- Precise incision in variety of tissue structures

- Quick recovery, with less tissue destruction and enhanced healing

- Minimum post-operative pain and trauma

- Decreased post-surgical edema

- Better excision for biopsy and histological examination, minimal lateral thermal damage realized as "cold scalpel"

- Hemostasis with minimal tissue scar for excellent cosmetic results





## SEVEN WAVEFORMS USING MONOPOLAR AND BIPOLAR RADIOFREQUENCY TECHNOLOGY FOR CUSTOMIZED PROCEDURES

### 1. Pure Cut: 120 Watts

- With the least amount of lateral heat and minimal tissue destruction
- Best cosmetic results and fastest healing
- Ideal for skin incision and biopsy samples

### 2. Blend Cut: 100 Watts

- Cutting with superficial coagulation of adjacent tissue
- Ideal for removal of nevus, wart, corn and skin lesions especially in vascular areas

### 3. Pulsed Cut: 150 Watts

- Rapidly modifies current in response to changes in tissue impedance and provides a "fractionated" intelligent output to facilitate a controlled cutting process
- Smart algorithm adjusts the cutting speed, thus provides a uniform cut and control over cutting speed and prevents abrupt and too deep cutting
- Ideal for removal of big moles and polyps and large loop excision (LLETZ) or Conization
- As a result of the automatic adjustment of the cutting current, cutting in tiny steps is possible and the incision can be made with almost millimeter accuracy
- An alarm signal notifies exact time of cutting so more safety is provided

### 4. Forced Coagulation: 100 Watts

- For hemostasis of small blood vessels, up to 1.6mm in diameter
- Useful for cutting with maximum hemostatic control

### 5. Fulguration: 25 Watts

- Sparking to produce desiccation and eschar
- Ideal for intentional tissue destruction
- Maximum hemostasis

### 6. Pulsed Spray: 25 Watts

- Ideal for superficial coagulation without contacting the electrode with tissue
- The crest factor of waveform is more than the others

### 7. Bipolar Coagulation (Auto-Start Bipolar & Manual Bipolar): 50 Watts

- Intended for more precise coagulation with minimal charring and carbonization
- Ideal for procedures performed on patients with pacemakers

**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)  
**Maximum Power Consumption:** 600 V.A  
**Protection Class:** Class I  
**Type of output:** BF  
**Weight:** 7Kg  
**Dimensions (W.H.D):** 37 x 16 x 46 cm



# MEG 1-E

## FOR ENDOSCOPY

MEG1-E is the specialized electrosurgical unit for endoscopic procedures.

It has been designed to perform all endoscopic cutting, standard monopolar and bipolar coagulation and argon plasma coagulation.

Advanced endoscopic cutting modes for Polypectomy, Sphincterectomy at ERCP.



- Two special modes, optimized for Polypectomy and Papillotomy
- High controlled power and instant cutting initiation, reduces the risk of delayed perforation
- Limited cutting speed intelligently prevents uncontrolled rapid cutting (ZIPPER EFFECT)
- Fractionated cutting and controlled coagulation, reduces bleeding probability
- 4 adjustable settings to achieve desired coagulation effect

**Mains Voltage:** 220V AC  $\pm$  10%, 50 Hz (110 V AC Optional)  
**Maximum Power Consumption:** 600 V.A  
**Protection Class:** Class I  
**Type of output:** CF  
**Weight:** 7Kg  
**Dimensions (W.H.D):** 37 x 16 x 46 cm



## WIRELESS FOOTSWITCH

### Benefits

- Elimination of cable "tripping" hazards
- More freedom in footswitch's location
- More convenient to be used by several persons
- Easier cleaning/storage
- Powered by globally available standard batteries
- 24 months warranty



GENERAL SPECIFICATIONS	
Battery	2*(AA) Alkaline
Range	10 meters
Battery life	300 hours
Pairing	Could be paired with any desired device
Delay	Less than 100 ms
Antenna	Internal
Sleep mode	Enters sleep mode if one hour not used
Indications	3 states: Connect/Disconnect/Low Battery
Operating temperature	+10 to +40°C
Body material	Metal
Weight	1.8 Kg
Dimensions	21*18*5 cm





## OUTPUT CHARACTERISTICS

		Iconic Image1	Iconic IS410	Iconic IS410S	MEG2	MEG1
	MODE	Max. Power (w)	Max. Power (w)	Max. Power (w)	Max. Power (w)	Max. Power (w)
<b>Monopolar Cut</b>	Pure	360	360	360	---	360
	Blend1	330	330	330	---	330
	Blend2	300	300	300	---	300
	Blend3	270	270	270	---	270
	Papillotomy (Optional)	360	---	---	---	---
	Polypectomy (Optional)	360	---	---	---	---
<b>Monopolar Coagulation</b>	Swift	200	200	200	---	200
	Forced	120	120	120	---	140
	Soft	100	100	100	---	100
	Spray	120	120	120	---	120
<b>Bipolar Cut</b>	Bipolar Cut	100	100	100	---	100
	Bipolar Resection/TUR (Optional)	300	300	300	---	250
	Bipolar Ablation (Optional)	300	---	---	---	---
<b>Bipolar Coagulation</b>	Manual Coag.	200	80	80	100	80
	Auto Start Coag.	50	50	50	50	50
<b>Vessel Sealing</b>	Seal 1 (Large seal)	250	---	250	250	---
	Seal 2 (Fine seal)	235	---	235	235	---
<b>Argon Coagulation</b>	Continuous	100	100	100	---	---
	Pulsed	50	50	50	---	---

	MEG1-E		MEG1-R	
	MODE	Max. Power (w)	MODE	Max. Power (w)
<b>Monopolar Cut</b>	Pure	250	Pure	120
	Blend	200	Blend	100
	PapillotomY	360	Pulsed Cut	150
	Polypectomy	360	---	---
<b>Monopolar Coagulation</b>	Soft	80	Forced	100
	Spray	80	Fulguration	25
	Pulsed Argon	80	Pulsed Spray	25
<b>Bipolar Coag.</b>	Bipolar Coag.	80	Bipolar Coag.	50
	---	---	Auto start Bipolar Coag.	50
<b>H.F Nominal</b>	410 KHz		2 MHz	

## Quality has no bounds!

Quality means striving to assure reliability with every single product. Kavandish System has a team of technicians solely dedicated to quality testing of each Electrosurgical Unit throughout its production.

Functional tests are carried out over several hours for each ESU under specific, controlled conditions. Documentation of the results is issued for every test. A continuous improvement process guarantees persistent optimization of product quality.





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