

Electrosurgery



# confidence in performance

#### Tradition and experience

EMED has been present in the market since 1995. From the beginning, we have operated in the medical segment. Electrosurgery is our domain. Starting from a single model of electrosurgical unit which entered into production in 1997, we gradually extended our offer. Today, we offer a whole range of electrosurgical units fully equipped with accessories and instruments. Our electrosurgical products vary from small units for use in outpatient settings to comprehensive electrosurgical systems.

#### Our mission

Based on our long standing experience in electrosurgical units' production all together with our customer's knowledge, we want to ensure constant development of surgical techniques and continuously improve the quality of work in the operating theatre.

#### **New solutions**

The design and production process is based on modern technologies that ensure safety and high quality of our products. Simultaneously, in order to provide products that outpace needs of our the most demanding clients, we are always in search for new solutions.

#### **Production process**

The production process is maintained according to the highest standards, certified by the Quality Management System Certificates EN ISO 13485:2016. All our electrosurgical units are CE labelled.

We offer high quality and reliable electrosurgical units.

For confidence in performance.









## safety systems

### confidence through safety

of electrical parameters

To get through a successful operating procedure is always a matter of both - a medical team and instruments the surgeon can relay on. The rule is to pick out instruments in the same way as surgical team, by choosing those that ensure smooth running of any procedure and back-up in case of emergency.

AutoTest EMED systems, after being switched on, perform a comprehensive internal test, whose result

is displayed in the form of a precise, legible message.

Overload Protection Supervising the temperature of the most critical components of the system makes it possible

to avoid damaging the system, even if it is being heavily exploited.

Automatic operation Automatic regulation of the delivered power depending on the needs. A microprocessor Spectrum Result monitors the tissue parameters on an ongoing basis to achieve the optimum cutting effect.

NEM System The NEM system controls the quality of the contact of a return electrode with the patient's skin.

Using the NEM system, as well as splitted neutral electrodes, has totally eliminated the problem

of burning the patient's skin while applying a patient neutral electrode.

EndoDetect Fully controlled resection process for polypectomy procedures. The system of snare fitting

detection makes it impossible to activate the cutting mode when the snare does not fit tightly around the tissue. By preventing an accidental electrical current activation, Endo Detect

minimizes the risk of perforation, ensuring maximum safety of the surgical procedures.

Defibrillator Proof All EMED systems are resistant to the defibrillation impulse.

Constant surveillance A fast processor supervising the operation of the system provides an up-to-date assessment

of the electrical parameters. Any possible disturbances are immediately reported.

## spectrum of use in electrosurgery

### result oriented performance



To facilitate the work with an electrosurgical system to the greatest extent possible, we have equipped spectrum with a number of functions to support the surgeon during the procedure.

- the SmartDevice System detects and identifies the connected instrument. It automatically adjusts the appropriate operating modes and output parameters to the connected instrument,
- the SpectrumResult solution maintains the output settings so as to obtain the desired effect regardless of the surgical conditions,
- ThermoStapler® II new generation of vessel sealing
- 10-inch InTouch Screen has integrated brightness adjustment and a choice of graphics versions
- universal SDS outputs allow the use of monopolar and bipolar instruments in the same output,
- new specialist modes are adapted to specific applications in urology, arthroscopy and endoscopy,
- simple software updates via USB,
- communication with the user in different languages, **Voice Communication commands inform** about the operating status,
- Spectrum Trolley provides ergonomic work in the operating room.

Electrosurgical unit SPECTRUM is a state-of-the-art electrosurgical system that automatically adapts to the user's needs.

Owing to the solutions used in SPECTRUM, the user does not need to control power settings. The SPECTRUM system itself ensures that the output settings are maintained so as to obtain the desired result, regardless of the surgical conditions - result oriented performance.

Through active cooperation with our Customers we have created SPECTRUM - the first electrosurgical system which adapts to different surgical procedures so that each surgical intervention is as effective as possible.



## modes of operations

### setting performance goals

Get to know our electrosurgical operating modes to select them accordingly to your performance goals.



MONO CUT

Monopolar cutting with different haemostasis effects. Effect 1 is used to cut the tissues when additional bleeding control is not needed. This cutting mode causes the least damage to tissues. Other effects include enhanced haemostasis levels. They are used when there is a need for more intensive bleeding control already in the course of cutting. The higher haemostasis levels control bleeding better, but exert a stronger thermal impact on the tissues. Instruments: monopolar electrodes, e.g. knife, loop or needle.

MIXED CUT

Monopolar drying cutting. Alternating cutting and soft coagulation enable the cutting of severely bleeding tissues, while minimising blood loss. Instruments: monopolar electrodes, e.g. knife, loop or needle.

PRECISE CUT

Precise monopolar cutting. Used when cutting small and precise structures. More gentle current enables higher cutting precision. Instruments: monopolar electrodes, e.g. knife, loop or needle.

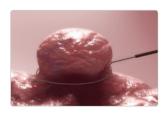


**URO CUT** 

Monopolar cutting for urological procedures. The mode is used in the environment of non-conductive fluids, e.g. Purisol, glucose or distilled water. It is necessary for the TURP and TURB procedures. Instruments: monopolar urological resectoscope.

**HYSTERO CUT** 

Monopolar cutting for specialised gynaecological procedures (hysteroscopy). The mode is used in non-conductive fluids, e.g. Purisol or glucose. Instruments: monopolar hysteroscope - loop electrode.



POLIPO CUT

Monopolar cutting for endoscopic procedures. Necessary for polyp removal. Alternating cutting and coagulation ensures optimum coagulation and reduces the risk of bleeding. Instruments: standard endoscopic loops, e.g. from Olympus or Pentax.

PAPILLO CUT

Monopolar cutting for endoscopic procedures. Used for cutting Vater's papilla during a papillotomy procedure. It ensures safe cutting with the optimum hemostatic effect. Instrument: papillotome, e.g. from Olympus or Pentax.



**SOFT COAG** 

Low-voltage contact monopolar coagulation. This mode enables deep coagulation, reaching deeper than the other types. Instruments: monopolar electrodes, e.g. ball, spatula or lancet.



SPRAY COAG

High-voltage non-contact monopolar coagulation. It enables quick and effective coagulation of larger areas. It eliminates tissue adherence to the instrument. Instruments: monopolar electrodes, e.g. ball, spatula or lancet.

HYBRID COAG

Monopolar coagulation for contact and non-contact highvoltage applications. Instruments: monopolar electrodes, e.g. ball, spatula or lancet.

**FORCED COAG** 

Contact monopolar coagulation. A traditional type of coagulation which enables quick and efficient coagulation of local bleeding. Instruments: monopolar electrodes, e.g. ball, spatula or lancet.



ARGON COAG

Argon-enhanced monopolar coagulation. The mode is used for non-contact coagulation of the surface of bleeding tissues. It eliminates smoke and smell. It ensures very shallow and gentle coagulation. Instruments: rigid argon electrodes for coagulation.

PULSE ARGON

Argon-enhanced pulsed monopolar coagulation. It is used in gastroenterology to control bleeding. It enables the precise delivery of energy doses exactly to the bleeding site. Instruments: flexible argon probes.

ARGON CUT

Argon-enhanced monopolar cutting. The use of argon reduces the amount of smoke and smell. The thermal damage to the tissues is reduced and bleeding control is improved. This function is particularly desirable during procedures that require intensive use of the unit. Instruments: needle or lancet type argon electrodes.



**BI-CUT** 

Bipolar cutting with different effects of haemostasis. Special bipolar instruments are used for this mode. This mode is particularly recommended for procedures performed on neonates and patients with a heart pacemaker. Instruments: specialised standard instruments for bipolar cutting.

**URO BI-CUT** 

Bipolar cutting for urological procedures TURP and TURB. Used for cutting and vaporisation of tissue. This mode is used in fluid environment. It requires the use of conductive fluids, e.g. normal saline or Ringer's solution. Instruments: bipolar urological resectoscope, loop or a vaporisation electrode.



SOFT BI-COAG

Low-voltage contact bipolar coagulation. In this mode, the current flows between the electrode tips and no passive electrode is required. Typically, it is used to seal single medium-sized blood vessels. Instruments: bipolar forceps, bipolar laparoscopic instruments.

## argon

### efficiency oriented performance



Argon in electrosurgery

Argon plasma coagulation ensures fast and efficient coagulation of large, heavily bleeding surfaces. Provides effectual devitalisation of tissues, e.g. neoplastic tumours. Argon plasma coagulation means less blood loss and less tissue damage. With penetration depth limited to 3 mm, it is particularly recommended for areas of high perforation risk.





Argon coagulation and cutting





EMED electrosurgical units are equipped with standard argon coagulation and pulse argon coagulation operating modes. Those modes allows to run any surgical intervention in safe and effective way. The option of adjustment of pulsation in argon coagulation enables more precision during endoscopic procedures. EMED electrosurgical units are also equipped with the option of monopolar cutting in argon shield.



Efficiency enhancing features

- immediate hemostasis helps efficiently coagulate large areas of bleeding surface
- penetration depth limited to approximately 3 mm minimizes risk of perforation
- tissue carbonization is minimal compared to standard electrocoagulation
- no tissue vaporization minimizes the risk of perforation
- no contact between the applicator and tissue means no tissue
- less surgical smoke gives good visibility of operating area
- reduced smoke eliminates unpleasant odors
- precise application of thermal energy results in reducing procedure time

argon 7

### Argon in endoscopy



The advantages of argon coagulation makes an ideal in endoscopic procedures, in gastroenterology in particularly. Argon coagulation together with dedicated endoscopic modes of operation made by EMED allow safe and effective way of running surgical intervention.

For endoscopic interventions EMED dedicates particular flexible endoscopic probes. They are designed for multiple use and are available in a variety of sizes and lengths. Detailed list of argon instruments and accessories are available from current accessories catalogue.

### Argon in open surgery



Argon coagulation is an excellent option for open surgery procedures, especially in case of glandular type of organs. For open surgery procedures we offer rigid argon applicators for coagulation and electrodes with needle or lancet ends for monopolar cutting in argon shield.

### Electrosurgical units with argon

- Electrosurgical unit ATOM
- Electrosurgical unit ENDO
- Electrosurgical unit SPECTRUM
- Electrosurgical unit ES 350 with argon module
- Electrosurgical unit ES 350 with argon and ThermoStapler®

#### **Applications**

- gastroenterology
- general surgery
- plastic surgery
- pulmonology
- bronchoscopy
- laryngology
- gynaecology
- urology

For more information about argon coagulation and its application see "argon in electrosurgery" catalogue.

# ThermoStapler®

### time oriented performance





ThermoStapler®

Due to the combination of the thermal and mechanic effects, ThermoStapler® offers a permanent alteration of collagen structure. Ensures higher resistance and closing. ThermoStapler® enables closing blood vessels with a diameter of 7 mm, however each time the user's assessment of the closing security is needed.



Time reducing features

- integrated system: argon coagulation and a vessel
- sealing module ensures cost reduction, there is no need to purchase any additional units
- high reliability of the system ensures maximum safety of work
- blood loss is significantly reduced
- the system allows to economize on sutures and staplers
- natural sealing of vessels
- multiple-use device, no limits on the number of uses
- no foreign body remains in the patient's body
- regulating the intensity of the effect enables the surgeon to select the most appropriate type of operation high reliability of the system ensures maximum safety of work



### Advantages of ThermoStapler®

- physical pressure onto the vessel with the use of a bipolar clamps
- a generator deliver high frequency and low voltage current which
- does not cause sparks during the sealing process
- constant monitoring of the tissue impedance
- microprocessor control ensuring the repeated coagulation effect
- automatic switch-off of the generator at the moment of achieving
- the optimal sealing of the vessel, confirmed with a sound signal
- the possibility to select the level of intensity of the effect



### ThermoStapler® instruments

EMED offers wide range of instruments dedicated to open surgery and laparoscopic procedures. All ThermoStapler® system instruments are multiple use and can be sterillized in an autoclave.

## Electrosurgical units with ThermoStapler®

- Electrosurgical unit ATOM
- Electrosurgical unit SPECTRUM
- Electrosurgical unit ES 350 with argon and ThermoStapler®

#### **Applications**

- general surgery
- plastic surgery
- gynecology
- urology

# **Electrosurgical unit ATOM**

### compact but strong



SDS System Touch screen integrated argon connection - SDSA ThermoStapler® - vessel sealing system Automatic power regulation Real-time measurements of working parameters Various configuration option Bipolar resection Special endoscopic modes **Power Monitor** 

Electrosurgical unit ATOM is a compact system which easily adapts to the user. It ofprovided by large and complicated electrosurgical systems only. Since it is possible to configure in any way the available operating modes, each usercan set up an electrosurgical system that accurately meets the actual needs and requirements.

ATOM features monopolar and bipolar techniques in a variety of cutting and coagulafers possibilities which have so far been tion modes. The generator features highlyspecialized operating modes, e.g. bipolar resection, an endoscopic cutting procedure and ThermoStapler® - a system for sealing large blood vessels. An integrated argon module brings the benefits from argon plasma coagulation and cutting in open, laparoscopic and endoscopic surgical procedures. ATOM is the first electrosurgical system which offers the advantages of both a compact size and a huge range of capabilities.



ATOM ensures an unprecedented ease of operation for the user with its:

- colour seven-inch display with a touch screen.
- innovative user interface,
- power monitor displaying average and real power,
- real-time monitoring of the output parameters of the unit,
- detection of the connected instruments (the SDS system),
- automatic selection of modes and settings to match the connected instrument,
- integrated argon connection,
- easy configuration of available modes and functions through an USB port,
- the possibility of an easy upgrade of its software to include new functions and operating modes.

































for endoscopy



Touch screen Advanced endoscopic modes SpectrumResult Monopolar modes Bipolar mode Argon coagulation SDS System **NEM System AUTOTEST** 

Electrosurgical unit ENDO is the only highly specialized for endoscopic procedures on the market. It has been attentively design to meet all requirements of endoscopic operation room. It enables to perform all endoscopic procedures that requires monopolar endoscopic cut, bipolar and monopolar coagulation. Integrated argon module allows to use all the advantages of argon coagulation in endoscopic procedures. SDS system recognizes

connected instruments and automatically selects the optimal working parameters. endo is equipped with touch screen display. Neutral electrode monitoring system [NEM] together with EMED SAFE disposable electrodes, guarantees maximum safety during procedures. endo is supported by specially design triple button foot switch for cut, coagulation and argon coagulation activation.



- advanced endoscopic cutting modes for polypectomy, sphincterectomy, mucosectomy
- specialized monopolar coagulation modes for endoscopic procedures
- continuous and pulsed endoscopic argon coagulation
- automatic regulation of all working parameters based on measurements in real time
- monitoring real and average power in endoscopic modes. It allows the operator to control unit parameters
- colour touch screen and SDS system for instruments detection
- neutral electrode monitoring system [NEM] and EMED SAFE electrodes guarantees maximum safety during procedure
- triple footswitch for independent activation of cutting, coagulation and argon plasma
- dedicated trolley with case for argon cylinder and handy basket for accessories and cables provides comfort and ergonomics in the operation room

#### **ENDOSCOPIC CUTTING**







#### ARGON PLASMA





#### ENDOSCOPIC COAGULATION







#### STANDARD MONOPOLAR MODES





# **Electrosurgical unit ARTRO**

for arthroscopy



Touch screen Advanced bipolar modes for use in Saline solution Monopolar modes SDS System **NEM System AUTOTEST** OVERLOAD Automatic power regulation

Electrosurgical unit ARTRO is a highly specialized unit dedicated for bipolar and monopolar arthroscopic procedures. ARTRO allows vaporization, cutting and bipolar coagulation in Saline solution. It also offers monopolar cutting and coagulation modes which are necessary in some arthroscopic operations. Automatic regulation of output parameters guarantees fast and effective work. SDS system recognizes connected

instruments and automatically selects the optimal working parameters. The operating modes and the output settings are selected automatically to the connected instrument. ARTRO is equipped with touch screen display. Neutral electrode monitoring system [NEM] together with EMED SAFE disposable electrodes, guarantees maximum safety during procedures.



- advanced bipolar cutting and vaporization modes for arthroscopic procedures in Saline solution
- versatile due to monopolar cutting and coagulation modes
- automatic regulation of all working parameters based on measurements in real time
- colour touch screen provides quick and easy ragulation of parameters
- instruments detection system facilitates the preparation for procedure
- after conecting SDS instrument the unit automatically selects suggested settings
- neutral electrode monitoring system [NEM] and EMED SAFE electrodes guarantees maximum safety during procedure selects suggested settings
- dedicated trolley equipped with shelves for accessories and materials necessary for the operation

**BIPOLAR** CUTTING



**BIPOLAR** VAPORIZATION



**BIPOLAR** COAGULATION



MONOPOLAR CUTTING AND COAGULATION



# **Electrosurgical unit ATOM smart**

pure performance



Touch screen SDS System Compact size Monopolar modes Bipolar modes Excellent performance Precise regulation **NEM** system **AutoStart** 

Electrosurgical unit ATOM smart is an electrosurgical device which uses highfrequency current flow for cutting and coagulating tissue. The unit allows to perform procedures in monopolar and bipolar modes. ATOM smart electrosurgical system is controlled with a touch screen which is designed to provide the user with easy access to all functions. The settings or modes of operation are changed by touching icons on the screen. To ensure maximum ease of operation there are no extra buttons or knobs. ATOM smart is equipped with

two universal SDS outputs, which identifies the connected instrument, automatically adjusts the appropriate operating modes and output parameters to the connected instrument.SOFT BI-COAG mode is equipped with automatic current activation feature (AutoStart) as soon as the tissue is grasped with the tips of the bipolar forceps. The coagulation stops as soon as the forceps' tips are open or after 30sec. Neutral electrode monitoring system [NEM] together with EMED SAFE disposable electrodes, guarantees maximum safety during procedures.

with argon and ThermoStapler®



ThermoStapler®
Argon
Bipolar resection
9 programs
Endoscopic cutting mode
MultiSwitch
SpectrumResult
NEM System
Overload Protection

Electrosurgical unit ES 350 with argon and ThermoStapler® is an electrosurgical system that meets the expectations of the most demanding medical professionals. It combines the benefits of electrosurgery, argon coagulation and a blood vessel closing system in one unit. It is equipped with two monopolar sockets, a bipolar socket and an independent ThermoStapler® socket. Enables operating with the use of various instruments without changing them during the procedure.

The unit follows an advanced operating modes such as bipolar resection. ES 350 customizes settings for different interventions by using 9 program storage positions. ES 350 with ARGON and Thermo-Stapler® system is equipped with SpectrumResult System for an automatic adjustment of power to maximizes the effectiveness of operation. Neutral Electrode Monitor System and Autotest ensures maximum safety during operation.

### with argon module



Argon Bipolar resection 9 programs Endoscopic cutting mode MultiSwitch SpectrumResult **NEM System Overload Protection** 

An electrosurgical generator which meets all the requirements of a modern surgery.

The unit enables monopolar operation in standard modes and in ARGON enhanced cutting and coagulation. It is excellent both for open surgery and endoscopic and laparoscopic procedures. Equipped with SpectrumResult system for an automatic adjustment of power, it maximizes the

effectiveness of operation. The safety systems: Neutral Electrode Monitor and AutoTest guarantee security of performed procedures. The option of programming settings and modes additionally increases the comfort of work with ES 350 with an ARGON module. It enables remote program change via MultiSwitch.

designed for modern surgery



Bipolar resection Endoscopic program MultiSwitch Spectrum Result NEM System Overload Protection Electrosurgical unit ES 350 offers a variety of operating modes for open procedures, as well as endoscopy and laparoscopy. It enables monopolar and bipolar operation. It is also equipped with additional functions for specialized procedures in urology, arthroscopy and endoscopy. The unit is equipped with system that

enhances the effectiveness of operation: automatic power adjustment Spectrum Result. The neutral electrode monitoring NEM System and AutoTest guarantee maximum safety during surgical procedure. The generator enables remote change of programs via MultiSwitch.

### designed for outpatient clinics



Monopolar modes Bipolar mode Bipolar AutoStart Bipolar AutoStop Surgilogic PowerStart **NEM System Overload Protection**  A new version of ES 300 unit. It operates in monopolar cutting mode with different levels of haemostasis as well as mode of soft and forced coagulation. ES 300 enables bipolar coagulation controlled with footswitch or automatically with AutoStart or AutoStop function. It is equipped with PowerStart

systemwhichfacilitatesthestartofaprocedure cutting and SURGILOGIC - automatic power adjustment. Supported by Neutral Electrode Monitor NEM, which controls the quality of neutral electrode application and AutoTest, an internal test conducted each time after power system is switched on.

designed for small surgical procedures for outpatient clinics



Modern desing
Automatic power regulation
Excellent performance
Monopolar modes
Bipolar mode
NEM System
Overload Protection
Footswitch recognition

The ES 120 has separate control panel for operation in monopolar cut and coagulation, and bipolar coagulation mode. The unit is also equipped with a multiple footswitch. The generator operates in the following modes: pure cutting, cutting with haemostasis, monopolar soft and forced coagulation and bipolar coagulation. ES 120

is equipped with Power Start System, neutral electrode monitoring NEM, and AutoTest an internal test conducted each time after the power is switched on. Altogether with smart appearance and user-friendly applications makes ES 120 an excellent choice for gynecological, dermatological and cosmetological surgeries, as well as for small surgical procedures for outpatient clinics.

### **ARIA**

### smoke evacuation system



Operating smoke is always an integral part of electrosurgical operation. Smoke generated during cutting and coagulation of tissues reduces the visibility of operating field. It also decreases the comfort of work in the operation room. Electrosurgical smoke, in a longer period of time, may have also negative influence on the health of people using electrosurgery in their daily work.

To improve comfort of operations and ensure the safety of the whole operating team it is recommended to use smoke evacuation system during electrosurgery. ARIA system assures safe and comfortable work in the operating room. ARIA is totally integrated with Spectrum electrosurgical system and it is also compatible the spectrum and other units EMED.





#### **Advantages**

- quiet operation of the device guarantees no distractions during operation
- 35-hour filter life reduces the costs of procedures
- comprehensive three-port filter allows to connect 6mm,
   9.5mm or 22mm accessories without using of additional adapters
- integration with Spectrum electrosurgical system allows automatic activation of suction while electrosurgical instrument is activated
- manual or via foot switch control available for other electrosurgical units
- three levels of air flow regulation
- easy to use

WATERFALL 23 ••••••

### WATERFALL

### endoscopic irrigation pump



Good visibility and clean operating site are of prime importance in all types of surgery.

In endoscopic procedures, the operation site may be contaminated with chime or blood residuein the gastrointestinal tract.

The possibility of irrigating the operating site is a very important element of any endoscopic procedure. The WATERFALL endoscopic irrigation pump was designed to ensure full comfort and safety during surgeries.

The pump makes it possible to quickly rinse the gastrointestinal tract using physiological saline or sterile water directly through the endoscope's rinsing channel or by using endoscopic instruments.

#### **Advantages**

- good visibility and clean operating site
- quick and easy fluid flow adjustment from the pump control panel
- possibility of activation using the footswitch or from the control panel
- low-noise, does not cause nuisance in the procedure room
- small size and possibility of mounting of the device on the endo trolley, which gives access to the pump during the procedure

# Electrosurgical accessories

Select electrosurgical instruments and accessories to reach your performance goals. We offer assortement of accessories for electrosurgery, including:

monopolar accessories · bipolar accessories · laryngology · arthroscopy · ThermoStapler® vessel sealing clamps  $\cdot$  neutral electrodes  $\cdot$  monopolar and bipolar cables · argon coagulation instruments · papillotomy instruments · polypectomy instruments · other endoscopic and laparoscopic instruments

The full range of our accessories is presented in our Accessories for **Electrosurgery** catalogue. We also invite to purchase our products throught emed official website: www.emed.pl







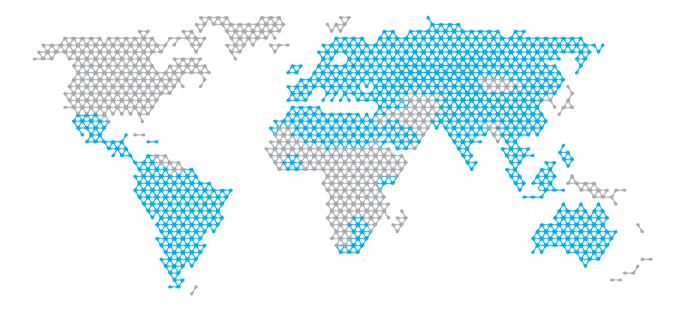






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## contact us





For more information please contact your EMED representative.

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