emed
confidence in performance

ENDO

gastroenterology in mind

gastroenterology in mind...

ENDO precision in endoscopic procedures

When designing electrosurgical unit ENDO, we focused on the specific requirements of endoscopic procedures performed in the gastrointestinal tract that pose a challenge to electrosurgery.

Our aim was to design an electrosurgical unit that enables efficient work during endoscopic procedures and at the same time is very easy to use.

The result of our work is ENDO. It is a compact electrosurgical unit that offers functionality which so far was available only in large, complicated electrosurgical units.

ENDO gastroenterology in mind

- advanced endoscopic cutting modes for polypectomy, sphincterectomy, mucosectomy
- special monopolar coagulation modes for endoscopic procedures
- argon plasma coagulation in standard and pulse mode
- automatic regulation of working parameters on the basis of real-time measurements
- instantaneous and average power monitor that enables the operator to control the unit's working parameters
- colour touch screen and system for recognition of connected instruments, SDS
- control system for the neutral electrode, NEM, and the EMED SAFE electrode that guarantee safety of the procedure
- three-pedal footswitch to activate cutting, coagulation and argon plasma modes
- dedicated trolley with case for argon cylinder and handy basket for accessories and cables ensure comfort and ergonomic conditions in the surgery theatre.

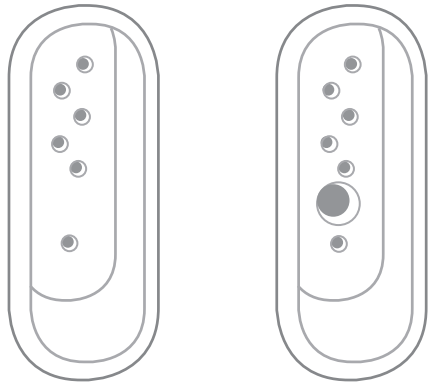
SDS – Smart Device System

ENDO is ready for work immediately after surgical instruments are connected.

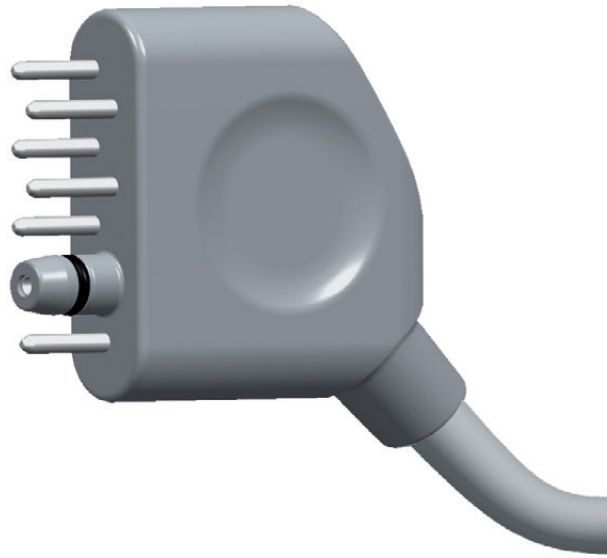
The unit detects and recognises all connected instruments. It automatically adjusts the appropriate working mode and output parameters for the instrument, thereby increasing user comfort during work. The surgeon does not need to think about which mode or setting use for the selected instrument.

Sockets of ENDO electrosurgical unit feature Smart Device System (SDS) – technology that recognizes connected instrument.
CUT/COAG socket is designed for endoscopic instruments.
PLASMA socket is designed for argon instruments and the argon connection is integrated to it.

Connect the instrument and start work.

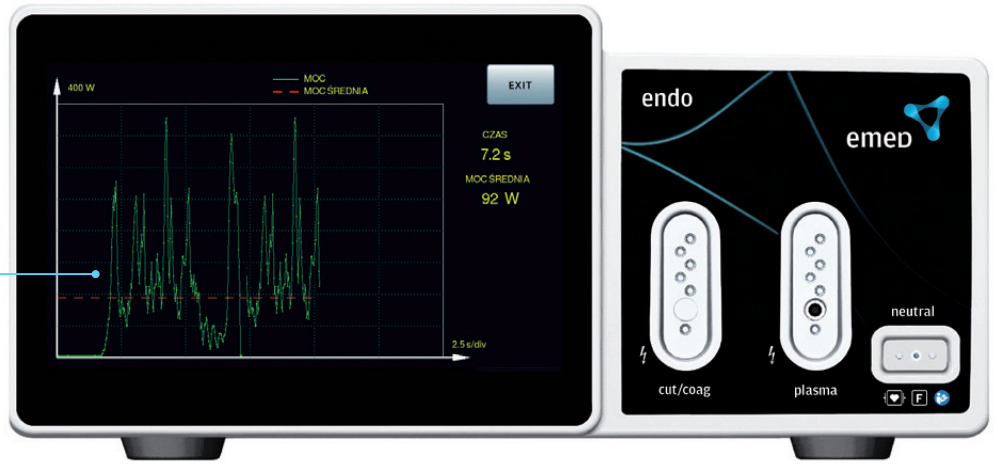


SDSA argon socket with integrated argon connection makes plugging the argon cables very convenient and user-friendly.



ENDO automatic adjustment

Measuring parameters
in real time



WORK AUTOMATIC ADJUSTMENT

ENDO is based on automatic adjustment of working parameters. The user does not have to correct or select settings. The unit selects working parameters for the connected instrument. ENDO recognises the instrument and automatically selects the appropriate working mode and electrical parameters.

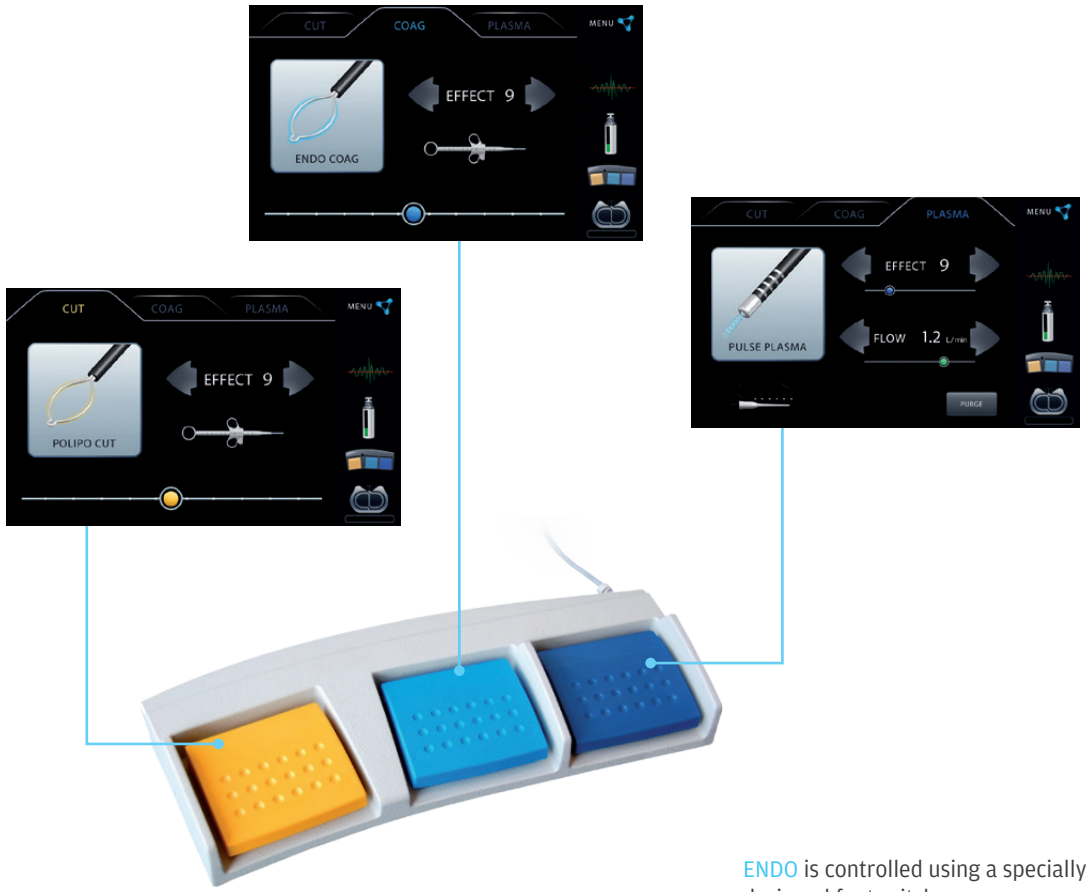
Using the SpectrumResult technology, ENDO monitors all working parameters in real time: actual power, current intensity and voltage applied. Thanks to continuous monitoring of all parameters, the user always obtains the best result regardless of the working conditions during the procedure.

ENDO is equipped with a power monitoring system which shows the diagram of instantaneous output power and the average power value after the cutting or coagulation process is completed.

ENDO ergonomics and comfort

A three-pedal footswitch was designed especially for ENDO. The three independent pedals enable immediate activation of the cutting, coagulation or argon plasma modes without changing the footswitch option.

The ENDO three-pedal footswitch is also available in wireless version. This innovative solution eliminates the additional cables from the operating theatre or procedure room. The ENDO footswitch communicates with the unit using wireless data transfer. The state-of-the-art technology used in the wireless module guarantees data transfer without undue delay and without interference in functions of other equipment in the operating theatre.
The footswitch is equipped with a long-life battery. The footswitch does not require any complicated configuration to be used with the ENDO unit. All the user must do is connect the wireless unit to the device and start work.



ENDO is controlled using a specially designed footswitch.

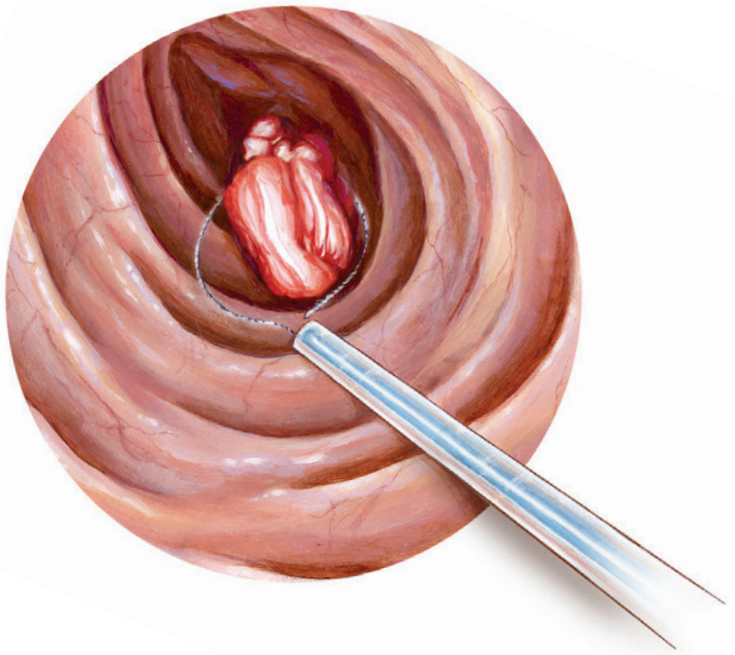
ENDO applications

WORKING MODE:

ENDOSCOPIC CUTTING

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.

ENDO is equipped with an automatic power adjustment system. It supplies the required power in the initial phase to begin cutting without undue delay or coagulation. It then automatically adjusts the power depending on the conditions of the surgery. The power is adjusted on the basis of continuous measurements of tissue impedance. ENDO adjusts power to obtain a continued and repeatable tissue effect.



Indications:

- polyp resection
- resection of elevated flat lesions

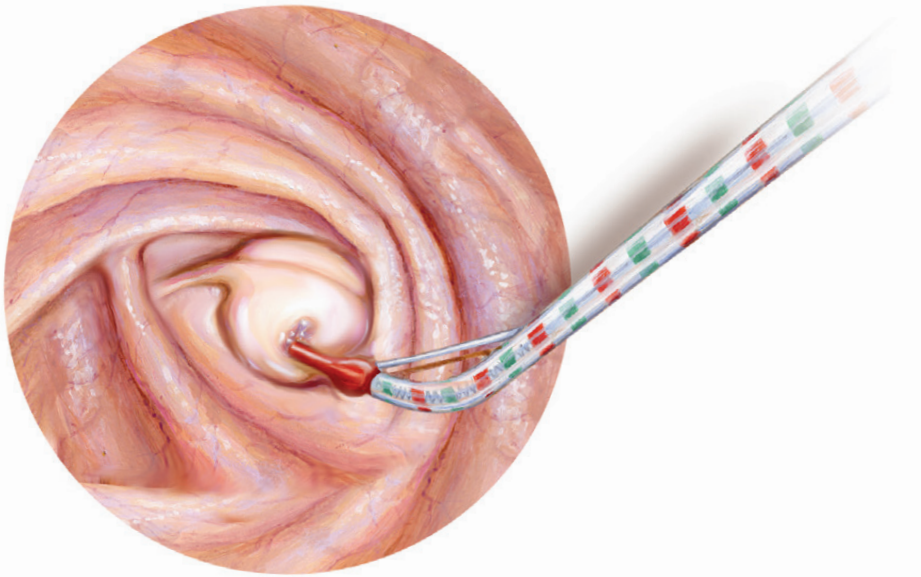
WORKING MODE:

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.

PAPILLO CUT limits the risk of uncontrolled cutting of Oddi's sphincter, which may cause intense bleeding. This is avoided by delivering the power for cutting and coagulation in short impulses.

The device operator is able to adjust the intensity of the cutting process depending on the current requirements. Regulation of the cutting intensity provides greater control over theentire incision process. The output power is selected automatically on the basis of real-time measurements. Current parameters are adjusted to provide optimal coagulation during sectioning of tissue.

The PAPILLO CUT mode can also be used to make incisions on, for example, the gallbladder to remove the stones.

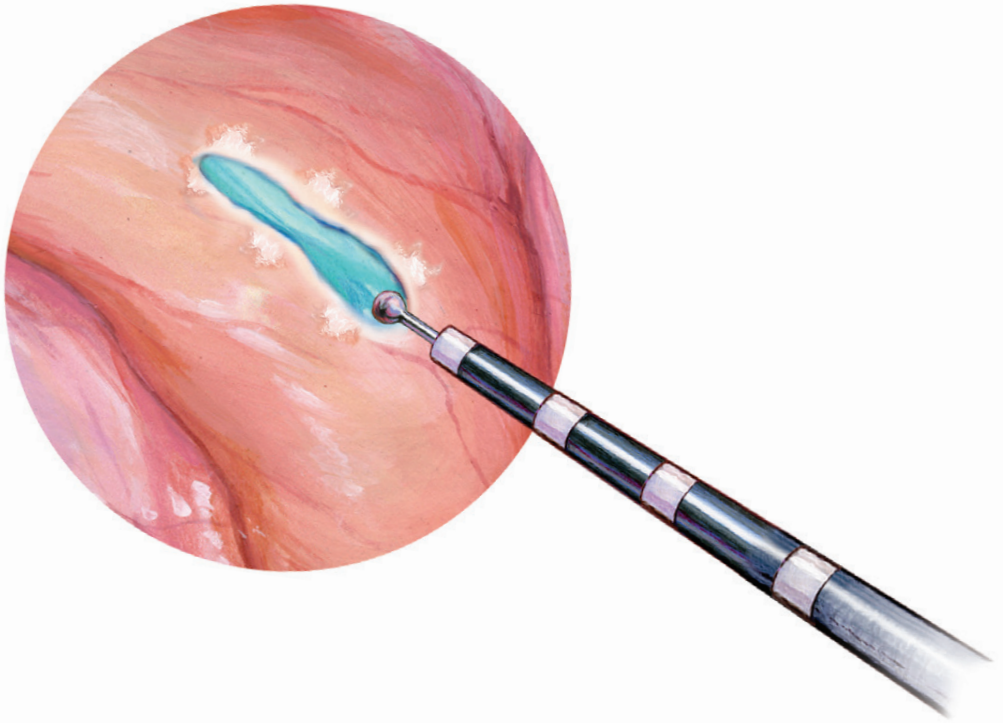


Indications:

- incision of Oddi's sphincter (sphincterotomy)

WORKING MODE:

MUCO CUT Monopolar cutting for mucosectomy procedures. A specialized endoscopic cutting mode for mucosectomy procedures. Pulsed cutting current and precise pulse duration enables safe and fast cutting in endoscopic submucosal dissection (ESD) and endoscopic mucosal resection (EMR) procedures.
Instruments: endoscopic knife or needle, e.g. from Fujifilm.



In the MUCO CUT mode, the cutting current is supplied as impulses. A nine-degree scale makes it possible to adjust the cutting process to the lesion and user's working method. MUCO CUT ensures high-precision in terms of cutting depth and direction. In the MUCO CUT mode, the power is selected automatically on the basis of real-time measurements.

This mode was designed with ESD and EMR procedures in mind. A marked and elevated lesion can thus be safely removed using the MUCO CUT current. A specialist knife for mucosectomy or a endoscopic loop is recommended for these types of procedures.

Indications:
- endoscopic mucosal resection (EMR)
- endoscopic submucosal dissection (ESD)

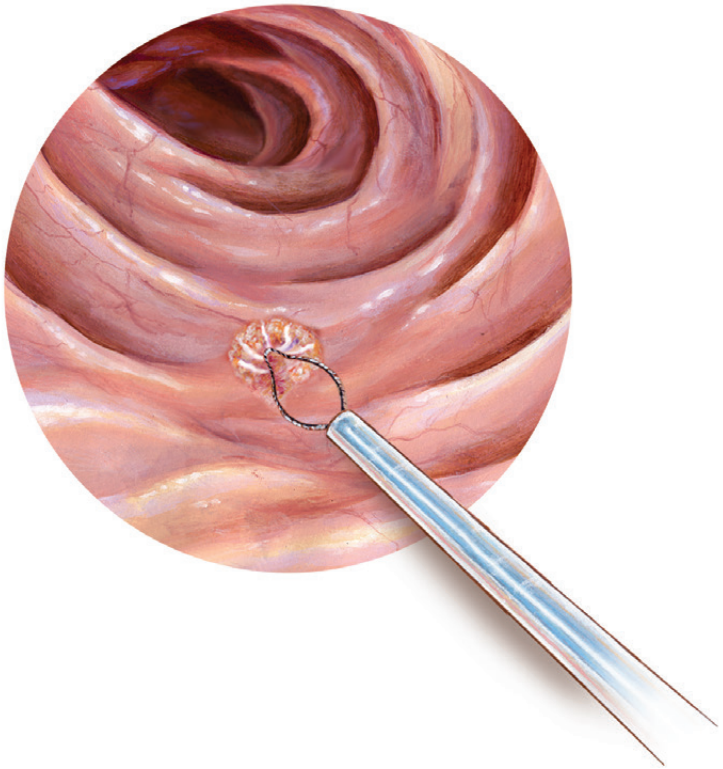
Safe and effective contact coagulation and contactless in gastroenterological procedures.

ENDOSCOPIC COAGULATION

ENDO COAG Monopolar endoscopic coagulation. It is used for additional hemostasis in polypectomy and marking the lesions. Instruments: standard endoscopic loops, e.g. from Olympus or Pentax.

ENDO SPRAY Monopolar endoscopic coagulation. It is used for quick hemostasis of local hemorrhages. Instruments: standard endoscopic loops, e.g. from Olympus or Pentax.

WORKING MODE:

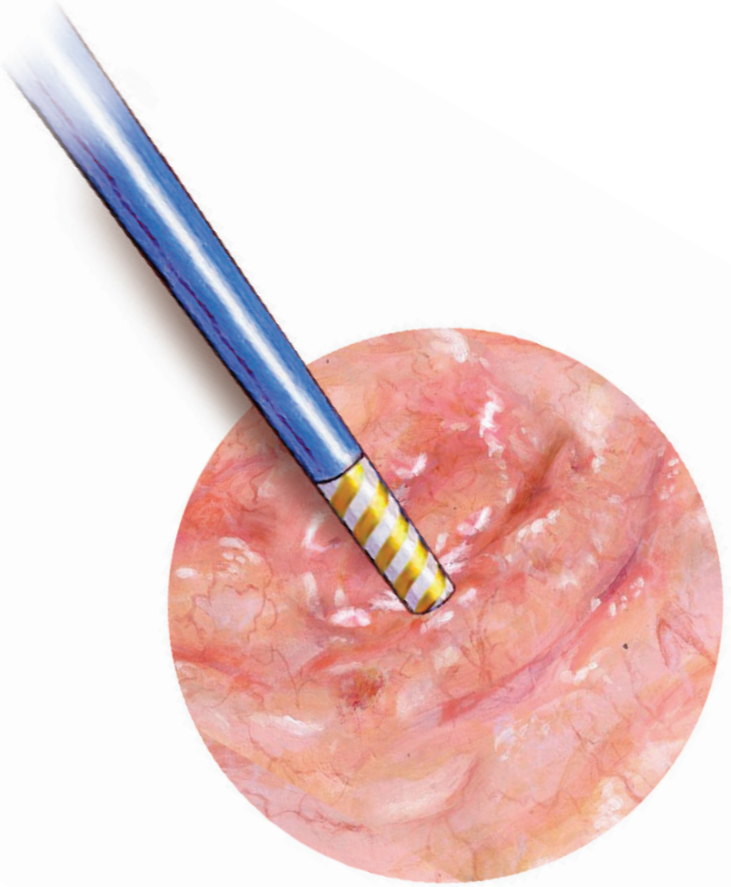


Indications:

- hemostasis of surface hemorrhage
- marking lesions for resection

ENDO BI-COAG Bipolar coagulation for endoscopic procedures. Soft hemostasis without carbonisation of the tissue.
Instrument: a bipolar probe and a SDS adaptor for bipolar endoscopic hemostasis probe REF 281-60S.

ENDO BI-COAG is a gentle, bipolar coagulation mode. It is designed for specialist bipolar endoscopic probes, also with the irrigation function. In this mode, the bipolar current flows between two poles located on the working tip of the bipolar probe. Hemostasis is achieved by heating the tissue in direct contact with the bipolar probe tip. Irrigation using saline solution facilitates the flow of the bipolar current, which in turn enhances the electrosurgical effect. This also reduces tissue adhesion on the probe tip. In the ENDO BI-COAG mode, the user can select from nine various hemostatic effects. In this mode, power is adjusted automatically in order to obtain the desired effect regardless of the surgical conditions. The bipolar probe is connected to the device using a special SDS plug. When the bipolar instrument is connected using the SDS plug, the device will switch to bipolar mode and display the suggested work settings.



WORKING MODE:

Indications:
- hemostasis of small hemorrhage along the entire gastrointestinal tract

ENODOSCOPIC ARGON PLASMA

ENDO is equipped with an internal module that enables efficient coagulation using argon plasma. The absence of any external devices greatly facilitates preparation for the procedure as well as the course of the surgery. The argon plasma technology is especially recommended in areas and sites with high risk of perforation.

PLASMA is a gentle argon coagulation mode designed for endoscopic procedures. The application of argon plasma enables highly effective coagulation at lower power settings. In the argon plasma mode, tissue carbonisation is greatly reduced. PLASMA always ensures great visibility of the surgical site as it minimises smoke during coagulation.

PULSE PLASMA is designed for sites where there is a serious risk of perforation. Current is delivered in short impulses, which lowers the amount of energy delivered to the tissue. Coagulation using PULSE PLASMA is shallower in comparison with continuous coagulation in the PLASMA mode. The impulse delivery also facilitates a more precise application.

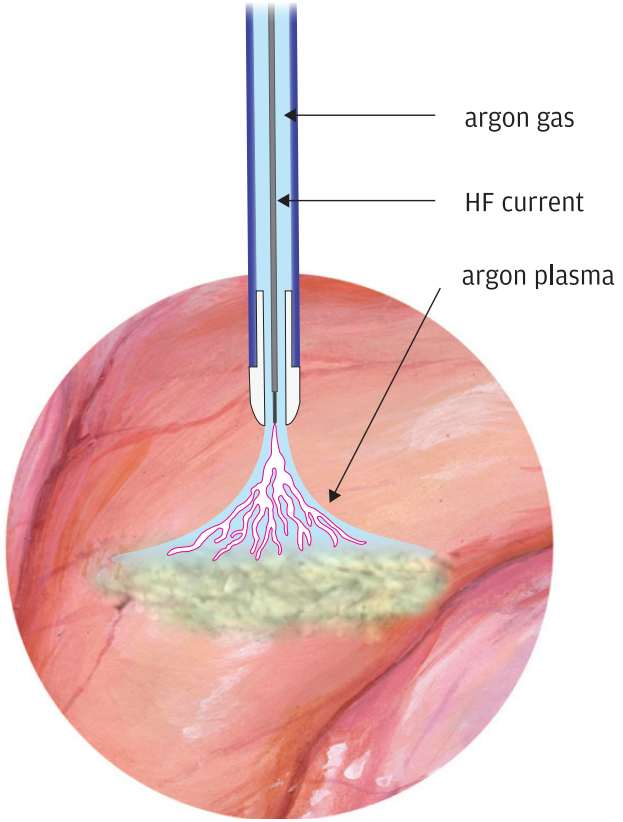
WORKING MODE:

Advantages of argon plasma coagulation:

- immediate hemostasis helps to efficiently and quickly coagulate large areas of bleeding surface
- constant coagulation depth limited to 3 mm minimises the risk of perforation
- no smoke ensures good visibility of operated site
- no contact between the applicator and tissue means no tissue adhesion
- precise application of coagulation

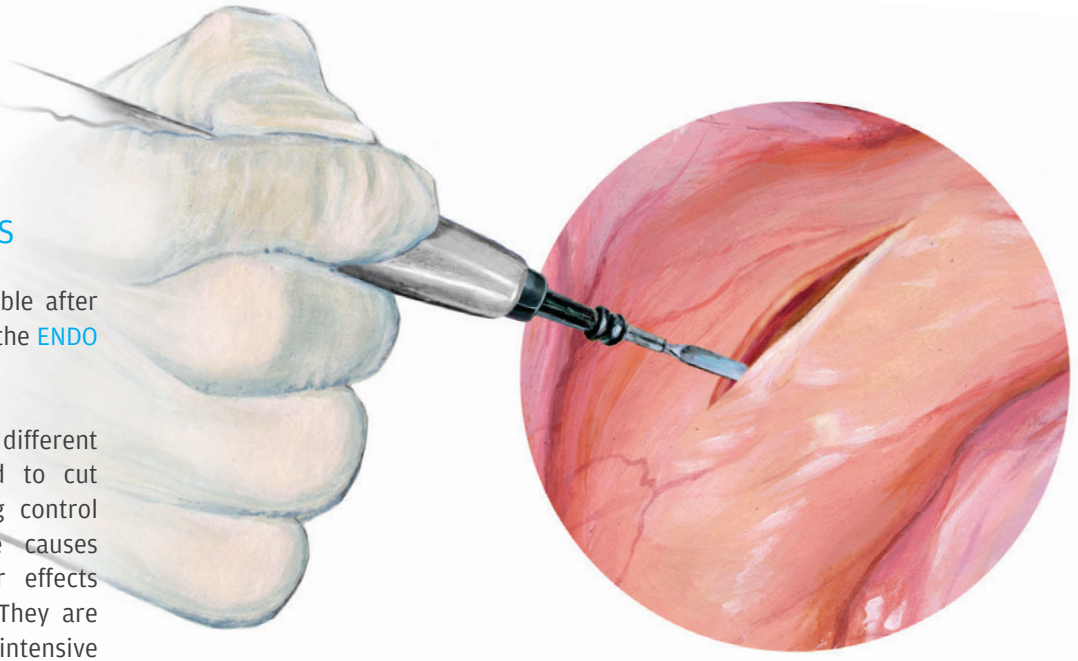
Indications:

- bleeding from angiodysplastic lesions
- bleeding post polypectomy
- residual tissue removal after polypectomy
- bleeding from cancerous lesions in the stomach and colon
- erosion, oozing ulcers
- devitalisation of tumours obstructing intestinal lumen



WORKING MODE:

ENDO makes it possible to use standard, monopolar cutting with varying degree of hemostasis and forced monopolar coagulation.



STANDARD MONOPOLAR MODES

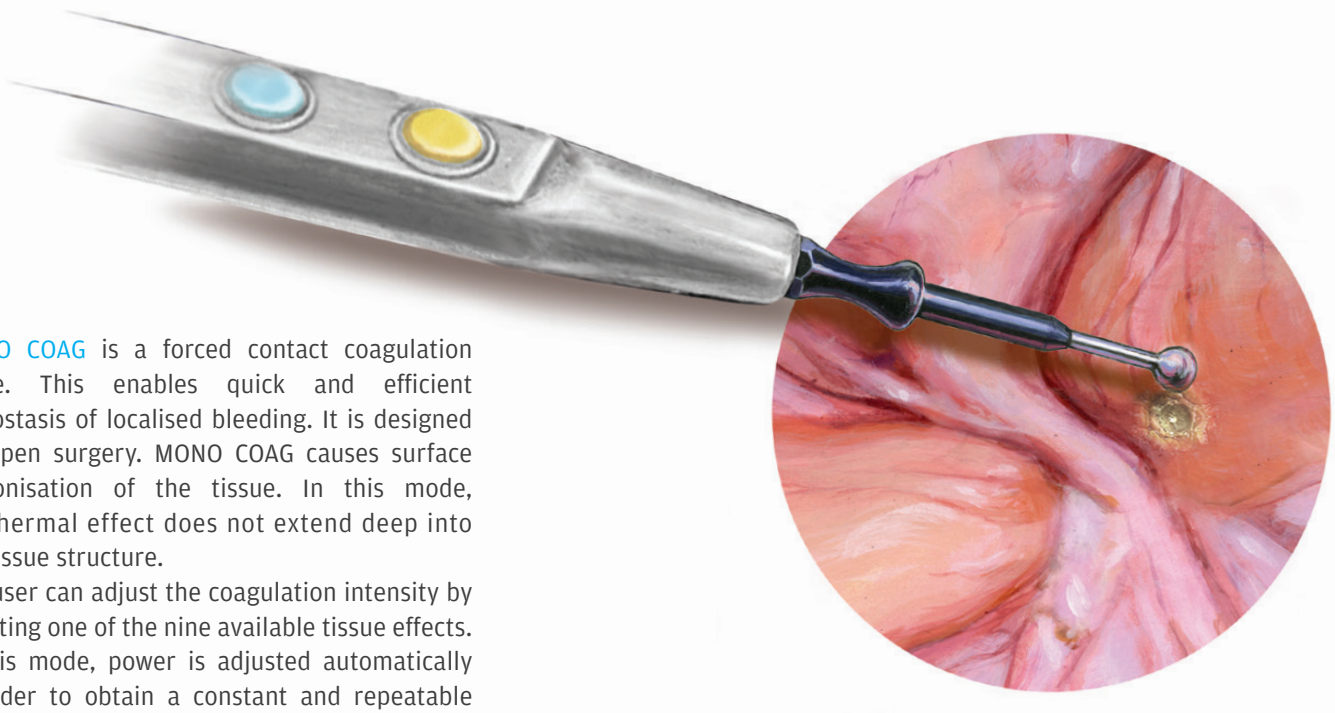
Standard monopolar modes are available after the monopolar handle compatible with the ENDO electrosurgical unit is connected.

MONO CUT Monopolar cutting with different hemostasis 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 hemostasis levels. They are used when there is a need for more intensive bleeding control already in the course of cutting. The higher hemostasis levels control bleeding better, but exert a stronger thermal impact on the tissues.
Instruments: monopolar electrodes, e.g. knife, loop or needle.

Indications:

- cutting of tissue with simultaneous hemostasis

WORKING MODE:



MONO COAG is a forced contact coagulation mode. This enables quick and efficient hemostasis of localised bleeding. It is designed for open surgery. MONO COAG causes surface carbonisation of the tissue. In this mode, the thermal effect does not extend deep into the tissue structure.
The user can adjust the coagulation intensity by selecting one of the nine available tissue effects. In this mode, power is adjusted automatically in order to obtain a constant and repeatable hemostatic effect.
Instruments: monopolar electrodes, e.g. ball, spatula or lancet.

Indications:

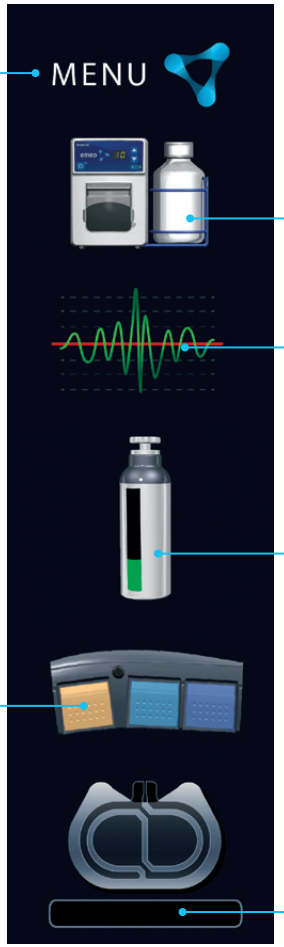
- contact coagulation of localised bleeding

ENDO safety and ergonomics at work

AUTOTEST
Each time the power is switched on, the system conducts an internal test of all the unit components and any instruments and auxiliary devices that may be connected. The result of the AUTOTEST is displayed on the screen as a message.

MENU
ENDO provides additional adjustment options of such parameters as: activation signal volume, screen brightness and language selection.

FOOTSWITCH
ENDO automatically identifies the type of footswitch connected to the unit.



SUPPLEMENTAL DEVICES
In example endoscopic irrigation pump.

POWER MONITOR
ENDO unit automatically adjusts the output power to achieve desired effect on tissue, analyzing conditions of operating area. Power monitor shows current power output during cutting.

ARGON RATE
Shows the status of argon cylinder.

NEM SYSTEM
The ENDO electrosurgical unit is equipped with the NEM system which controls the adhesion quality of the neutral divided EMED SAFE electrode. Application of the electrode is monitored throughout the whole procedure. In combination with the EMED SAFE electrodes, the NEM system maximises safety during the procedure.

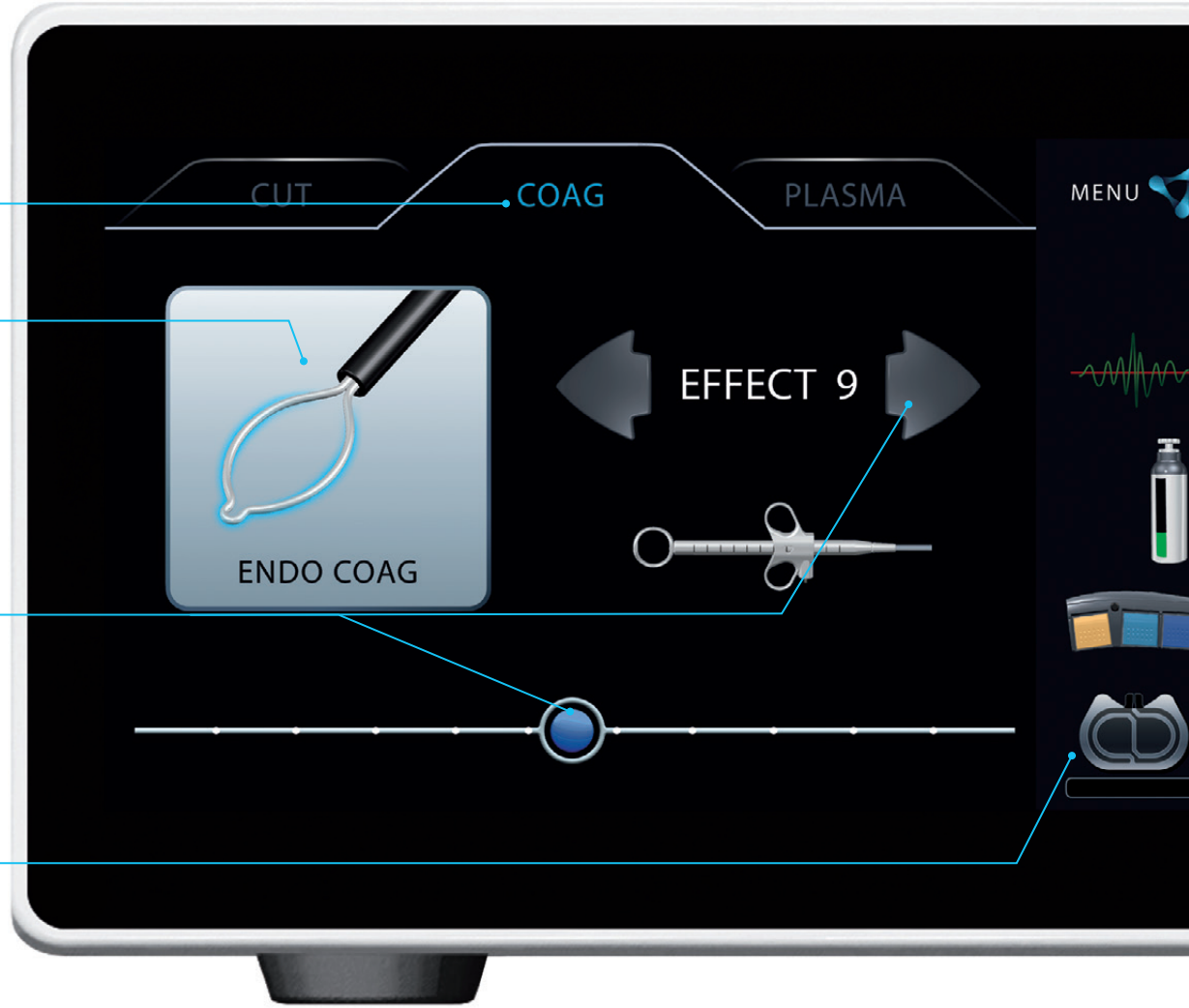
ENDO easy use

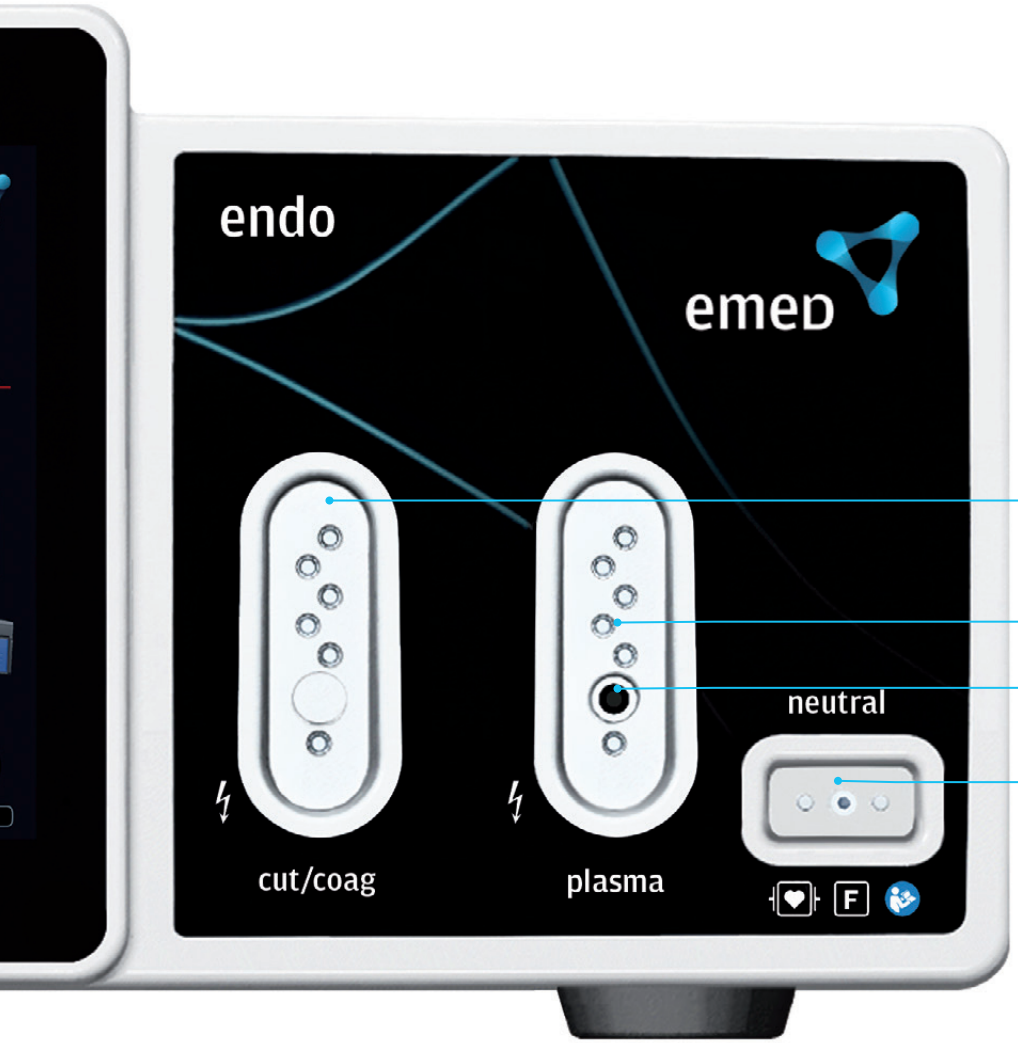
3 work panels:
CUT, COAG, PLASMA

selected working mode icon

settings values icon

sidebar:
MENU
POWER MONITOR
ARGON indicator
FOOTSWITCH icon
NEUTRAL ELECTRODE indicator





CUT/COAG connection
– detecting monopolar and bipolar instruments

PLASMA connection
– detecting instruments for the argon plasma modes

ARGON connection

NEUTRAL ELECTRODE connection

ENDO 1:1 scale

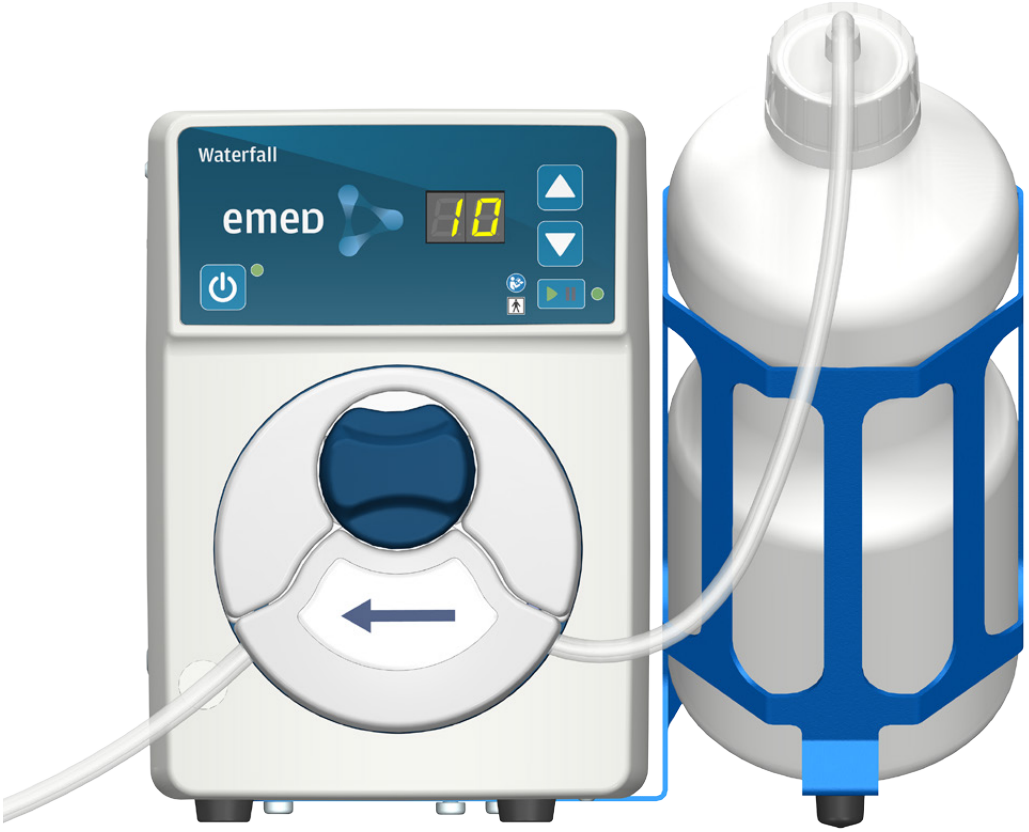
ENDO technical specification

TECHNICAL DATA	
Voltage	220-240 [V] or optionally 110-120 [V]
Rated power consumption	1350 [VA]
Measurements	real-time monitoring of output parameters
Power output	automatic output parameters adjustment. max 400W
WORKING MODES	
Monopolar	cutting, coagulation
Bipolar	coagulation
Argon	argon module integrated
SAFETY CONDITIONS	
Electric shock protection:	
Class / Grade	I / CF
Protection class	IP2X in accordance with 60529
Low frequency leakage current	as per EN 60601-1
High frequency leakage current	as per EN 60601-2-2
Generator frequency	333 [kHz]
Defibrillation proof	in accordance EN 60601-1, EN 60601-2-2
DIMENSIONS AND WEIGHT	
Length	385 [mm]
Height	141 [mm]
Width	305 [mm]
Weight	7 [kg]

WATERFALL

endoscopic irrigation pump

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



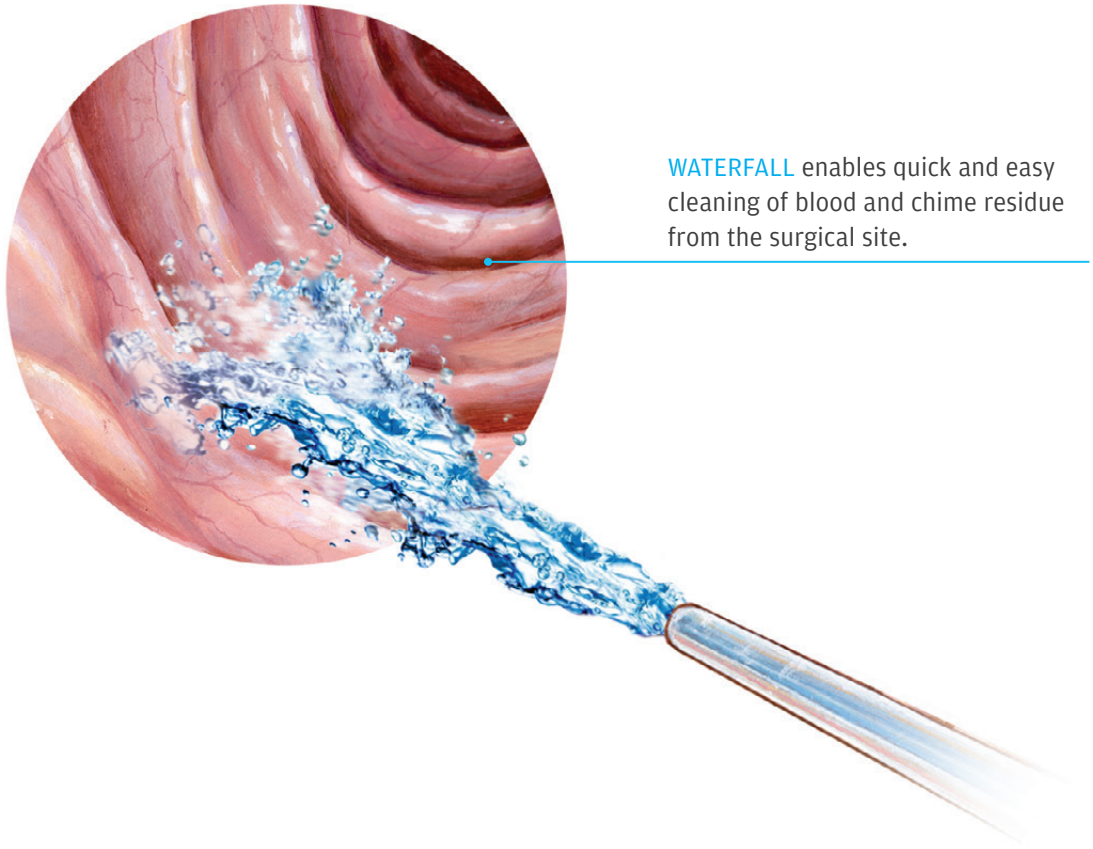
In endoscopic procedures, the operation site may be contaminated with chime or blood residue in the gastrointestinal tract.

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 opening or by using endoscopic instruments.

Advantages of the WATERFALL endoscopic irrigation pump:

- 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 unit on the TinyLine trolley, which gives access to the pump during the procedure

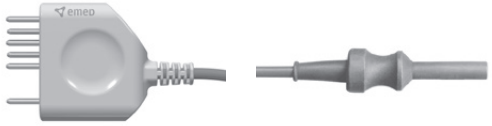


WATERFALL enables quick and easy cleaning of blood and chime residue from the surgical site.

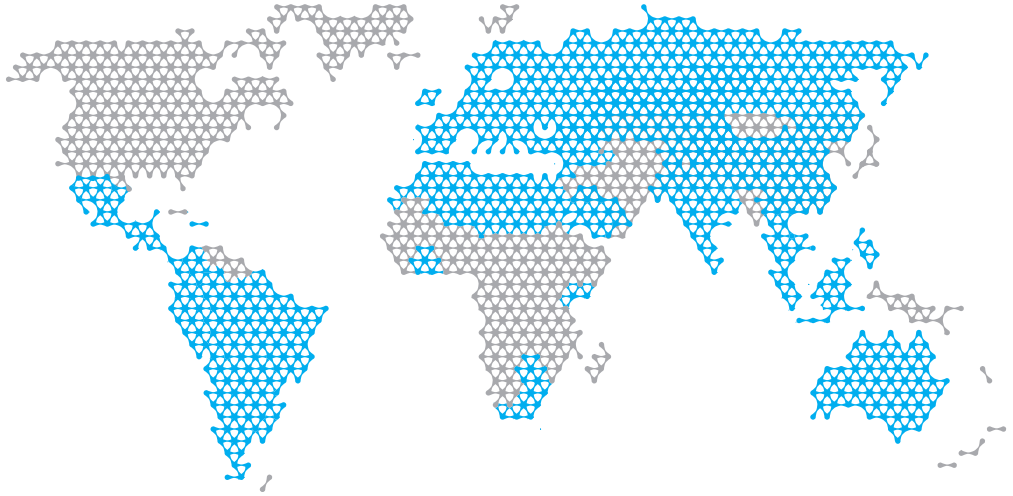
accessories for electrosurgical unit ENDO

	REF	
	100-600	Electrosurgical unit ENDO
	020-100	WATERFALL endoscopic irrigation pump
	080-060	TinyLine trolley with argon cylinder case for electrosurgical units

	REF	
	100-336	Three-pedal footswitch, MultiSwitch, wireless
	100-316	Three-pedal footswitch, cable 5m, 6-pin plug
 other types available on request	5501640	Argon regulator P300-P40EMED, DIN 477/6 (Europe)
	5501565	Argon regulator P300-P40EMED, DIN 477/6, with pressure sensor
	5501641	Argon regulator P300-P40EMED, DIN 477/10 (Northern Europe)
	5501621	Argon regulator P300-P40EMED, BS 341/3 (UK)
	5501631	Argon regulator P300-40EMED, CGA 580 (America)
	5501661	Argon regulator P-300-P40EMED, ISO 5145 Nº4
	100-051	Argon Cylinder 5L (empty housing - with no gas)
	100-151	Argon Cylinder 10L (empty housing - with no gas)

	REF	
	932-148	Flexible argon probe, reusable, TBS, dia. 1.5mm, length 1.5m
	932-149	Flexible argon probe, reusable, GIT, dia. 2.3mm, length 2.2m
	932-150	Flexible argon probe, reusable, GIT, dia. 3.2mm, length 2.2m
	932-151	Flexible argon probe, reusable, TBS, dia. 1.5mm, length 3m
	932-152	Flexible argon probe, reusable, GIT, dia. 2.3mm, length 3m
	432-46A	Monopolar cable for argon flexible electrode, flat connector, L: 3.5m, SDSA plug
	281-03S	Monopolar endoscopic cable, 3 m length, 3mm female, SDS plug
	281-60S	SDS adaptor for bipolar endoscopic hemostasis probe, for ENDO unit
	380-030	Disposable neutral electrode cable, L: 3m, flat plug
	380-050	Disposable neutral electrode cable, L: 5m, flat plug
	812-80H	Disposable neutral electrode EMED SAFE, hydrogel, split, for adults and children, 176x122mm, 110cm2

contact us



For more information please contact your EMED representative.

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REF 2023.06.K17.EN