

# Argon in electrosurgery



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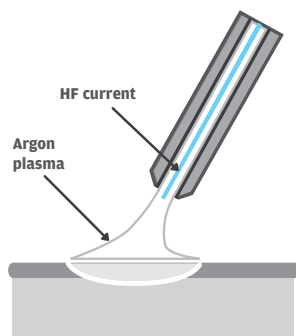
efficiency oriented performance

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.



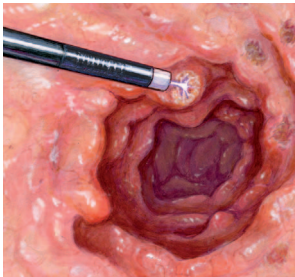
# argon in electrosurgery

confidence through technology

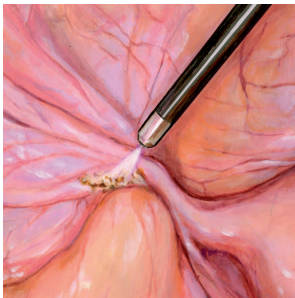


Argon coagulation uses the phenomenon of good conduction of high frequency current by ionised argon. Argon is a chemically inert gas, devoid of physiological effects and non combustible. Under the effect of current, it becomes ionised and forms a plasma cloud in which electric arcs are formed.

In argon coagulation, there is no contact of the active electrode with the tissue, and the distance between the surgical instrument and the tissue in open surgery is up to about 5 mm, and in endoscopic surgery up to about 3 mm. The thermal effect occurs at the time when a spark jumps from the active electrode tip to the tissue. The length of the plasma arc between the probe tip and the tissue depends on the selected power, resistance of the target tissue and argon flow rate. Usually the distance between the active electrode and the tissue is 3 to 5 mm, depending on the selected coagulation parameters.



When using argon coagulation, observe all precautions for standard monopolar coagulation. Read the instructions for using argon components. Class 4.8 (99.998%) or 5.0 (99.999%) argon is used for argon coagulation.



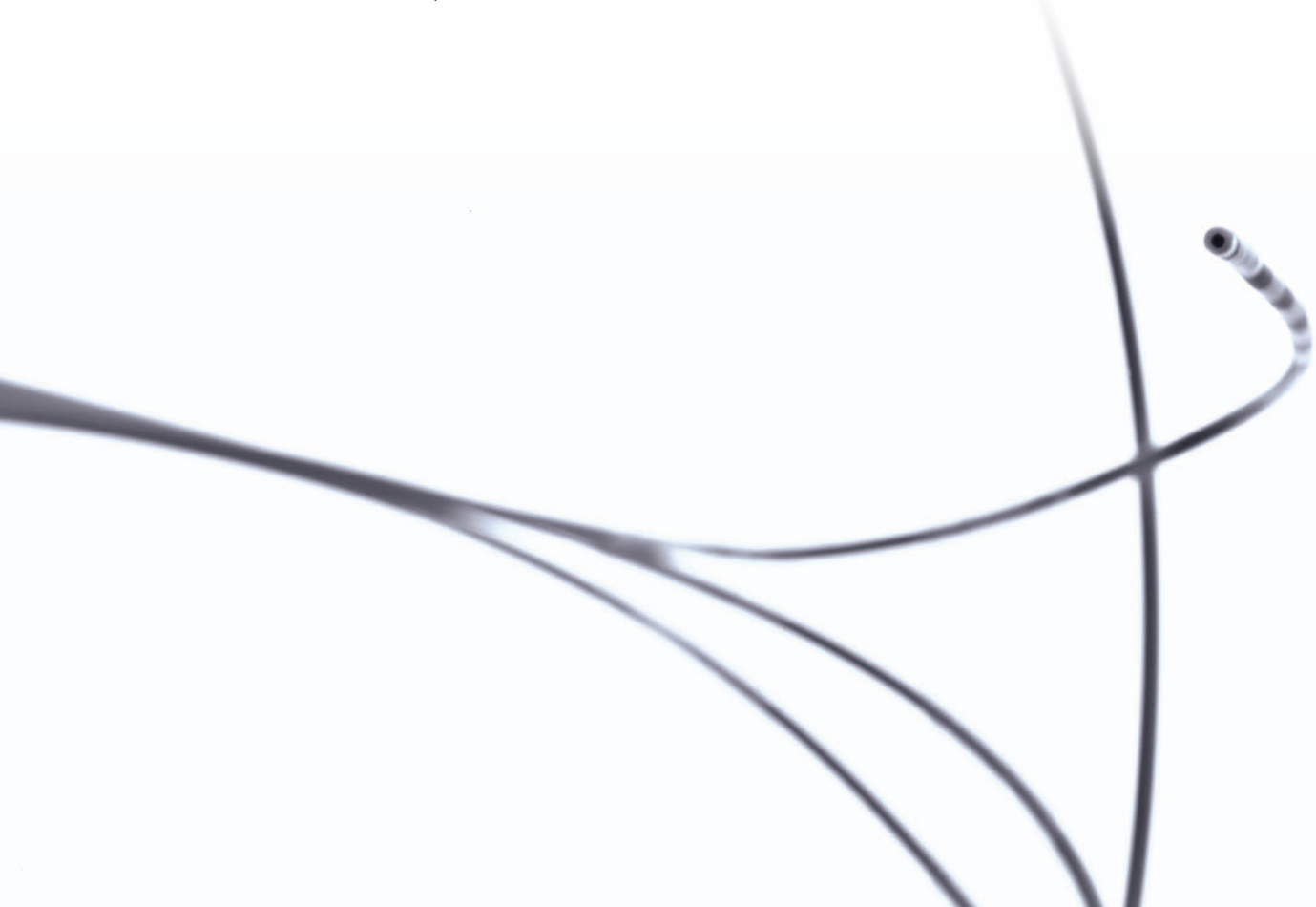
# argon safety features

confidence through safety

The main advantage of argon coagulation is constant, minimum depth of the thermal effect. Owing to the limited depth of tissue damage during argon plasma coagulation, the risk of perforation is minimised; therefore, this method can be safely used in thin walled organs.

In the case of classical contact electrocoagulation, the thermal effect reaches deeper into the tissue; this is associated with a risk of gastrointestinal perforation. In argon coagulation, the plasma arc occurs in the tissues that have the lowest electrical resistance. The tissue through which the current has flowed achieves rapid haemostasis and as a result its electrical resistance increases. It means that at that site electric arcs will not form any more, so the coagulation depth will not increase and it will be maintained within the limits of 2 to 3 mm.

As argon plasma is a good conductor, the desired effect is obtained with significantly less power compared to standard high voltage coagulation and the amount of heat delivered to the patient's tissues is lower.



# advantages of argon

## setting performance goals

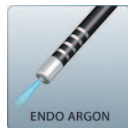
### Efficiency enhancing features of argon plasma coagulation:

- 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 adhesion
- 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 COAG

This mode is used for non-contact coagulation of bleeding tissue surfaces. It eliminates smoke and smell. It ensures a very rapid and effective coagulation.



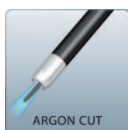
#### ENDO ARGON

Argon plasma mode for endoscopic procedures. It ensures a very shallow and gentle coagulation. It is necessary when there is a risk of perforation. No smoke gives good visibility of operating area.



#### PULSE ARGON

This mode is used in gastroenterology for control of bleeding. Current is delivered in short impulses. It enables precise dosing exactly at the bleeding site. It is important at sites where there is a serious risk of perforation.



#### ARGON CUT

The argon shield reduces the amount of generated smoke and smell. The thermal damage to tissues is reduced and bleeding control is improved. This function is particularly desirable during procedures that require intensive use.

# applications

Argon coagulation has broad application in local treatment of cancer, both in the case of advanced tumour resection and in the treatment of benign or pre-cancerous lesions.

The method of coagulation in argon plasma is equally effective when treating small adenomas of the large intestine, and, first of all, in tumour resection at locations where the risk of perforation is high.

Due to its convenience and safety, argon coagulation is often used during procedures performed for non oncological indications – endoscopic bleeding control and destruction of vascular lesions in the gastrointestinal tract.

General Surgery	<ul style="list-style-type: none"> <li>• open liver surgery, e.g. superficial bleeding after partial hepatectomy</li> <li>• abdominal surgery</li> <li>• breast surgery, e.g. breast reconstruction, breast reduction, removing breast tumours</li> </ul>
Bronchoscopy	<ul style="list-style-type: none"> <li>• superficial bleeding</li> <li>• benign endobronchial tumors as papillomatosis, granuloma, lipoma, hemangiomas</li> <li>• recanalization of malignant stenoses of the respiratory tract</li> <li>• stent ingrowth/overgrowth</li> <li>• scar stenoses</li> <li>• post-interventional conditioning of resected area, e.g. after cryosurgery</li> </ul>
Pulmonology	<ul style="list-style-type: none"> <li>• hemoptysis</li> <li>• surface haemorrhages</li> <li>• benign endobronchial tumors (e.g. papillomatosis, granulomas polyps in the trachea, lipomas, hemangiomas)</li> <li>• recanalization of malignant stenoses of the respiratory tract</li> <li>• stent ingrowth / overgrowth</li> <li>• scar stenoses</li> </ul>
Gastroenterology	<ul style="list-style-type: none"> <li>• haemorrhage from angiodysplastic lesions</li> <li>• haemorrhage from polypectomy sites</li> <li>• devitalization of remaining tissue after polypectomy</li> <li>• erosions or ulcers or oozing of blood due to vascular penetration by tumors</li> <li>• residual sessile adenoma tissue</li> <li>• stenosing tumors</li> <li>• stent ingrowth</li> <li>• colitis</li> <li>• bleeding gastric or colon carcinoma</li> <li>• watermelon stomach</li> </ul>
Otolaryngology	<ul style="list-style-type: none"> <li>• tonsillectomy</li> <li>• therapy of subglottic and tracheal lesions (e.g. granulomas after laser surgery, papillomatosis, subglottic stenosis)</li> <li>• microsurgery of soft palate (e.g. sleep apnea, fibromas)</li> <li>• therapy of superficial mucosal lesions (e.g. leucoplakia, hemangiomas, granulomas, precancerosis)</li> <li>• applications in the nasal cavity (e.g. nasal hemorrhaging, hyperplasia of the nasal concha)</li> </ul>
Gynecology	<ul style="list-style-type: none"> <li>• treating the uterus during a myomectomy</li> <li>• laparoscopic surgery for endometriosis</li> </ul>

# instruments for endoscopic and open surgical procedures

## setting the stage

Our offer includes a comprehensive range of electrosurgical products for argon plasma coagulation, completely equipped with accessories and surgical instruments – for both endoscopic procedures and open surgery. We also offer an argon tip for laparoscopic applications.

All instruments for argon coagulation offered by EMED are intended for multiple use. They can be sterilised in an autoclave at 134°C.

### TROLLEYS FOR ARGON PLASMA GENERATORS

#### 080-100

SpectrumLine trolley for EMED ESU,  
with case for argon cylinders (2x 5L/10L), basket



#### 080-060

TinyLine trolley for endo ESU,  
with case for argon cylinder (5L/10L), basket





# electrosurgical units

with argon module

	Ref. No.	
	100-620	Electrosurgical Unit atom
	100-600	Electrosurgical Unit endo
	100-013	Electrosurgical Unit spectrum
	100-008	Electrosurgical Unit ES350 with argon module

# electrosurgical instruments

SDS argon instruments for open surgery and laparoscopy



932-14A

Argon electrode handle, large, 2 switches, cable 3.5m, SDSA plug



932-14S

Argon electrode handle, large, 2 switches, cable 3.5m, SDS/LuerLock plug



932-031

Argon electrode, rigid, insulated shaft, 25mm w. length, dia. 5mm



932-032

Argon electrode, rigid, insulated shaft, 100mm w. length, dia. 5mm



932-034

Argon electrode, rigid, insulated shaft, 350mm w. length, dia. 5mm



932-054

Argon needle, rigid, insulated shaft, 40mm w. length, dia. 5mm



932-044

Argon needle, rigid, insulated shaft, 115mm w. length, dia. 5mm



932-057

Argon lancet, rigid, insulated shaft, 40mm w. length, dia. 5mm



932-056

Argon lancet, rigid, insulated shaft, 115mm w. length, dia. 5mm

# electrosurgical instruments

## SDS argon endoscopic instruments



432-46A    Monopolar cable for argon flexible electrode, flat connector, L: 3.5m, SDSA plug



432-46S    Monopolar cable for argon flexible electrode, L: 3.5m, SDS/LuerLock plug, flat connector



Ø 1.5 mm    932-148    Flexible argon probe, reusable, TBS, dia. 1.5mm, length 1.5m



Ø 2.3 mm    932-149    Flexible argon probe, reusable, GIT, dia. 2.3mm, lenght 2.2m



Ø 3.2 mm    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

# electrosurgical instruments


## argon endoscopic instruments



932-141


Argon electrode handle, large, 2 switches, cable 3.5m, 3-pin/LuerLock plug





432-146

Monopolar cable for argon flexible electrode, L: 3.5m, 3-pin/LuerLock plug, flat connector



# argon accessories



100-051   Argon Cylinder 5L (empty housing - with no gas, DIN 477/6)

100-151   Argon Cylinder 10L (empty housing - with no gas, DIN 477/6)



5501640   Argon regulator P300-P40EMED, DIN 477/6 (Europe)

5501565   Argon regulator P300-P40EMED, DIN 477/6 (Europe)  
with pressure sensor

other types available on request



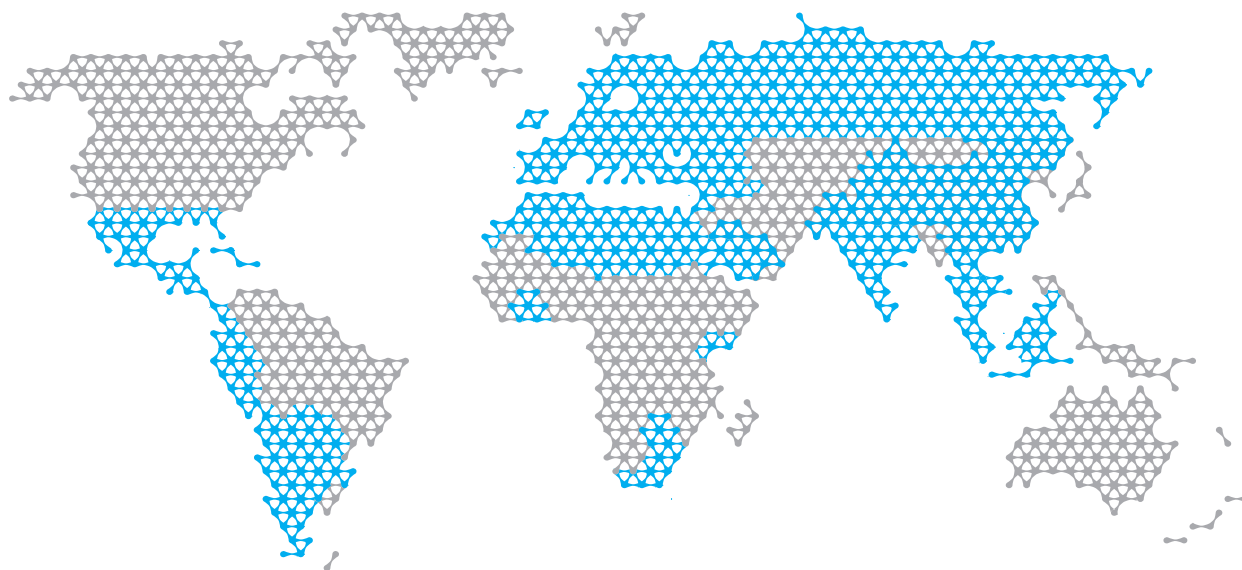
SE2M034I07   Argon bacteria filter, 0.33mm, 0.45um, sterile, 1pc.



100-053   Pneumatic argon cable, L: 3m

other lenght available on request

# contact us



EMED products are available all over the world. See [www.emed.pl](http://www.emed.pl) for contact details.

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