martin

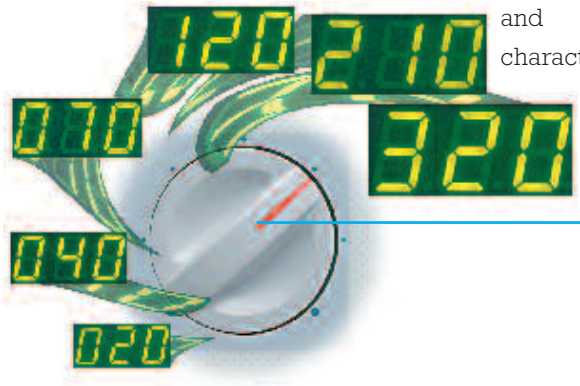
Electrosurgery

Martin ME 411

Utmost Safety and Reliability
Thanks to an Advanced Safety Concept

Progressively increasing/ decreasing power output

In the lower output range, the user can select the desired HF output power value in 1-watt steps, which allows very precise dosing. As the power adjuster is rotated clockwise, output power increases on a non-linear, progressive basis. This means that high power reserves are available in the upper power range. Thanks to these unique power-range and performance characteristics, the Martin ME 411 is universally applicable.

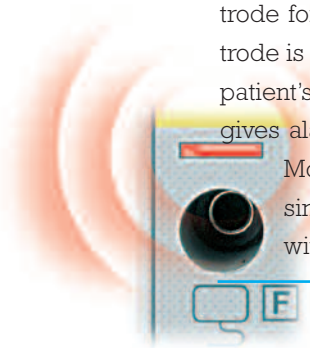


Integrated dynamic, self-adaptive HF power output control

With the help of the dynamic, self-adjusting power output control that has been integrated into the system, the Martin ME 411 automatically selects the most suitable operating point. This guarantees optimum cutting results irrespective of tissue impedance or cutting speeds.

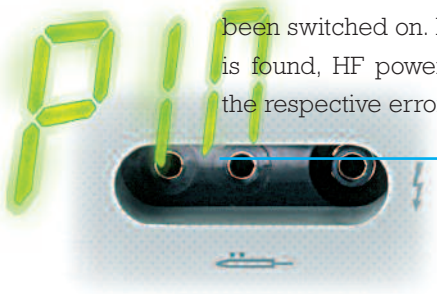
Highest patient safety thanks to Patient Control System (PCS)

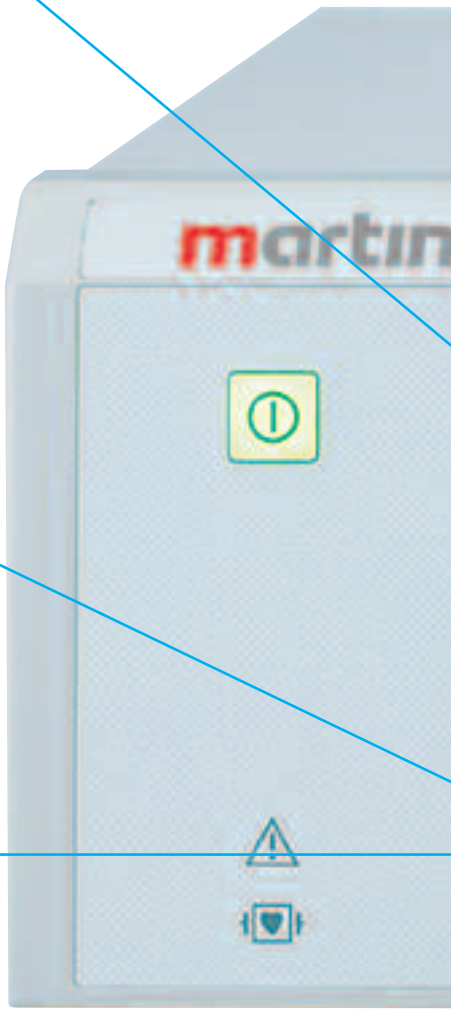
Using a dual-pad neutral electrode, the integrated Martin Patient Control System (PCS) continually monitors the neutral electrode for proper application. So if the electrode is only insufficiently in contact with the patient's skin, PCS inhibits HF-power and gives alarm, before critical situations arise. Moreover, the system also monitors single-pad neutral electrodes in acc. with IEC 601-2-2.



Better protection against mal-operation by PIN Error Control

The Martin ME 411 performs a power-on-self-test routine whenever the system has been switched on. If an error or malfunction is found, HF power output is blocked and the respective error code is displayed.





10 different types of current for a broad range of indications

Monopolar cutting 1
Pure cutting current allowing smooth cuts, with optional integration of a starting cut pulse.

Monopolar cutting 2
Cutting current blended with coagulation current.

Cutting URO 1
Cutting current allowing smooth cuts in liquid media (e.g. TUR), with optional integration of a starting cut pulse.

Cutting URO 2
Cutting current blended with coagulation current, for use in liquid media (e.g. papillectomy).

Contact coagulation 1
Coagulation current with very deep-reaching effects; electrode in direct contact with the tissue.

Contact coagulation 2
Coagulation current with deep-reaching effects; electrode in direct contact with the tissue. Particularly suitable in TUR.

Spray coagulation
Non-contact surface coagulation (fulguration). In tissue contact under liquid media (e.g. TUR) useful for staunching micro-bleedings.

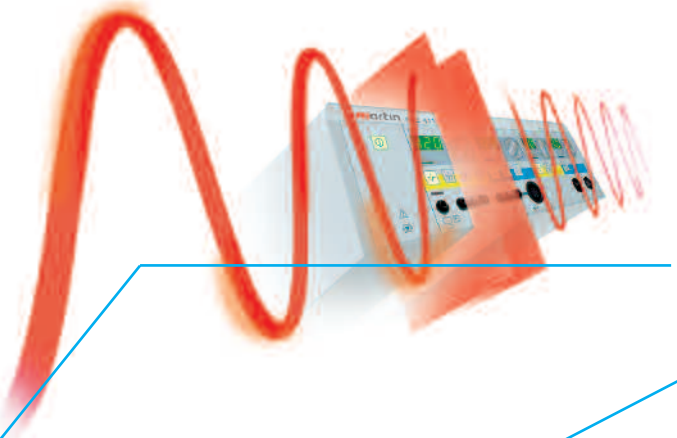
Bipolar cutting 1
Pure bipolar cutting current, to be used with sling-type electrodes, for example.

Bipolar cutting 2
Bipolar cutting current blended with coagulation current to be used f. e. with electrosurgical forceps, for example.

Bipolar coagulation
Automatic bipolar coagulation to be used with bipolar tweezers or bipolar instruments.

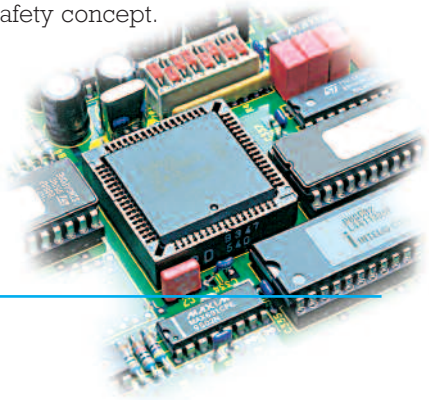
Highest safety for the patient by patented active leakage current compensation

The Martin ME 411 monitors and actively controls the HF leakage currents and compensates them. This helps to avoid the risks associated with so-called ,,accidental HF burns'', thus providing additional safety to the patient.



Advanced safety concept based on two microprocessors working in parallel

The tasks of monitoring and controlling the various system components are shared by two microprocessors working in tandem. As these two modules also monitor each other, they provide the basis for Martin's highly advanced safety concept.

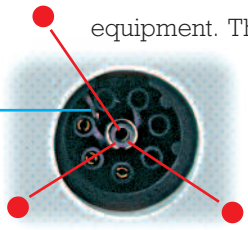


Bipolar Coagulation with AUTO-START and AUTO-STOP Function

The bipolar coagulation current is activated automatically by tissue contact and will automatically cut off the bipolar HF current as soon as the coagulation process has been completed, prior to unwanted side-effects like tissue glueing or pollution.

Multi-function connector for connecting intelligent accessories

The bipolar output port of the Martin ME 411 has been designed as a multi-functional interface for connecting intelligent accessory equipment. Thus, this interface provides for proper information transfer between the HF generator and the connected accessory part. Being upward compatible, this interface also takes account of future developments.



Electrosurgical Unit ME 411
Utmost Safety and Reliability
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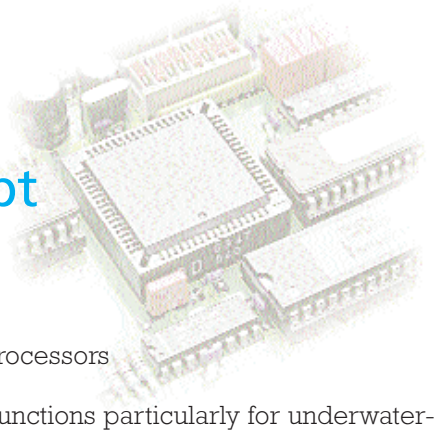

Advantages of the Martin ME 411

- Utmost patient safety by constant monitoring and active compensation of HF-leakage currents
- Constant monitoring of neutral electrode for proper application via PCS
- Safety of operation due to power-on-self-test, including detailed error messages
- Digital setpoint value display in accordance with the selected output power level
- Integrated dynamic, self-adaptive HF output control for reproducible cuts
- Progressive power output adjustment
- 10 different types of current available for monopolar and bipolar application
- Two independent power generators
- Two parallel µ-processors
- Two URO-CUT Functions particularly for underwater-cutting
- Serial interface for MABS
- Comfortable bipolar Cut or Coagulation
- Bipolar Autostart/Autostop function
- Symmetrical Bipolar Output, significantly reducing tissue glueing or pollution of electrodes
- Bipolar instrument recognition for use of intelligent accessories
- Broad range of high-quality, practice-oriented accessories – see Martin Accessories catalog

Martin Argon-Beamer-System (MABS)

In combination with the Martin Argon Beamer MB 181 the Martin HF-unit ME 411 with its intelligent interactive interface forms the Martin Argon-Beamer system. The MABS inaugurates new applications for superficial soft coagulation of tissue in open or endoscopic surgery.

Martin ME 411 Specifications

Supply voltage	100 V / 115 V / 127 V / 230 V / 240 V, 50 Hz - 60 Hz Adjustable by the Technical Service
Power input	in standby mode: 1 VA with no HF power output: 42 VA at max. power output: 880 VA
Class of protection	I
Classified acc. to MDD	IIb
Leakage currents	in acc. with IEC 601, Part 2-2
Type of equipment	CF; defibrillator-proof
Nominal frequency	500 kHz
Pulse frequencies	30 kHz at cut 2, URO cut 2 and contact coagulation 1 65 kHz at contact coagulation 2 50 kHz at spray coagulation 30 kHz at bipolar cutting 2

HF Power		**CF**	
Cutting 1	max. 320 W at 350 ohms	1.8	max. 2700 Vss
Cutting 2a	max. 320 W at 350 ohms	2.3	max. 3500 Vss
Cutting 2b	max. 320 W at 800 ohms	2.6	max. 4300 Vss
Urolog. cutting 1	max. 320 W at 350 ohms	1.8	max. 2700 Vss
Urolog. cutting 2	max. 320 W at 800 ohms	2.6	max. 4800 Vss
Contact coagulation 1a	max. 250 W at 200 ohms	1.8	max. 1300 Vss
Contact coagulation 1b	max. 250 W at 200 ohms	3.0	max. 2600 Vss
Contact coagulation 2	max. 150 W at 500 ohms	5.4	max. 4300 Vss
Spray coagulation	max. 120 W at 1000 ohms	5.5	max. 6000 Vss
Bipol. cutting 1	max. 80 W at 500 ohms	1.8	max. 900 Vss
Bipol. cutting 2	max. 80 W at 500 ohms	2.1	max. 1200 Vss
Bipol. coagulation	max. 80 W at 100 ohms	1.8	max. 400 Vss

Duty type	intermittent (10s/30s = duty factor of 25%)
Sound level	HF activation 55 dB(A), (adjustable 50 dB - 60 dB by Technical Service) Alarm: 65 dB(A)
Weight	14.2 kg
Interference suppression	limits in conformity with EN 55011 interference immunity in conformity with IEC 801
	CE marking conform with 93/42/EEC
Dimensions	405 mm x 135 mm x 380 mm (WxHxD)

Ordering Data

80-041-01-04	**Martin electrosurgical unit ME 411, with main cable, no accessories included**
80-140-00-04	Manual-switch accessories set, large
80-140-01-04	Foot-switch accessories set, large
80-140-02-04	Manual-switch accessories set, small
80-150-00-04	Accessory Set bipolar

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