

Our Technology, Your Health.

JIANGSU BONSS
MEDICAL TECHNOLOGY CO., LTD.

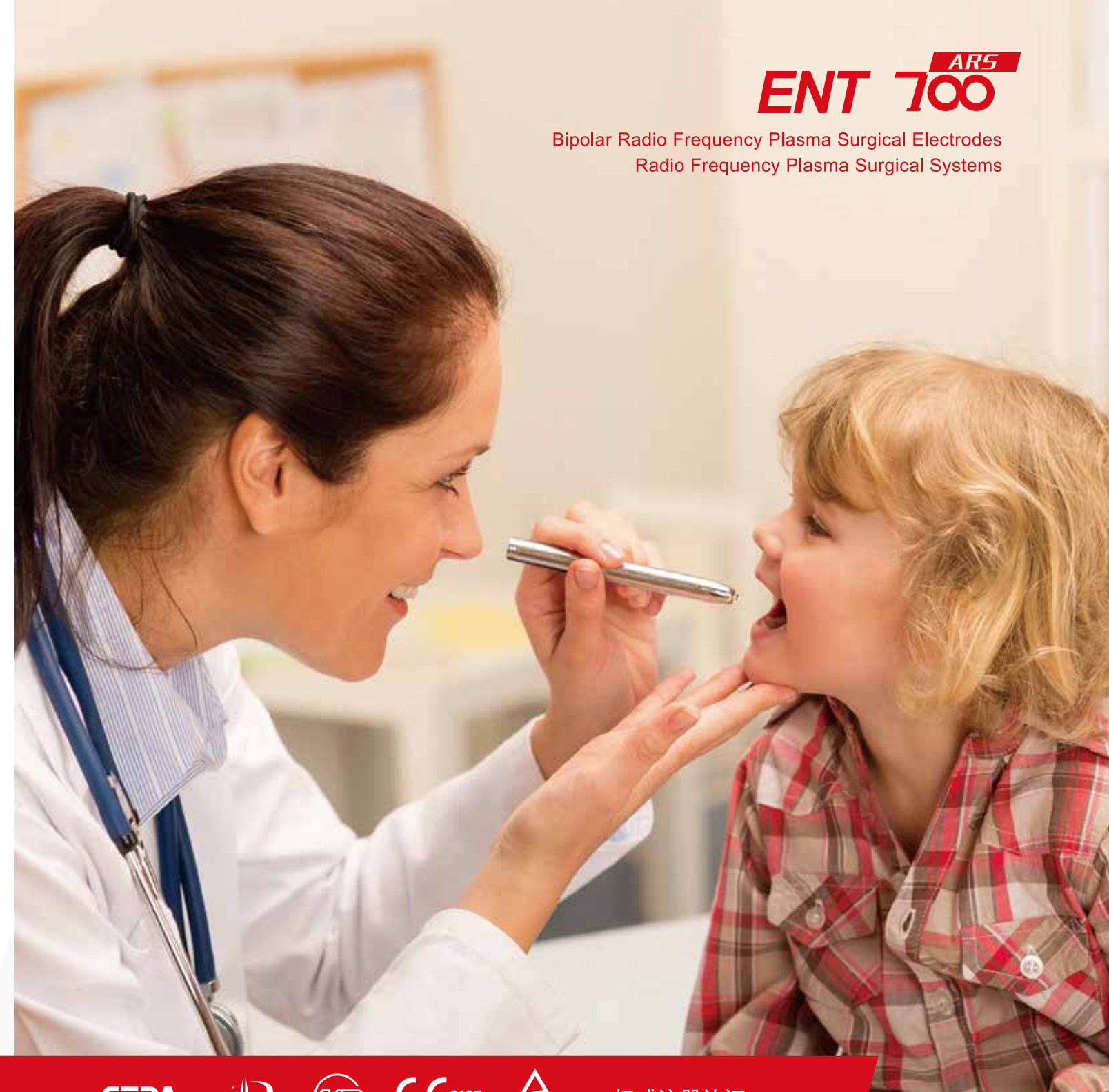
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Information included herein is indicative only. Actual products you receive may differ.

ENT 700 ^{ARS}

Bipolar Radio Frequency Plasma Surgical Electrodes
Radio Frequency Plasma Surgical Systems



CFDA



CE 0197



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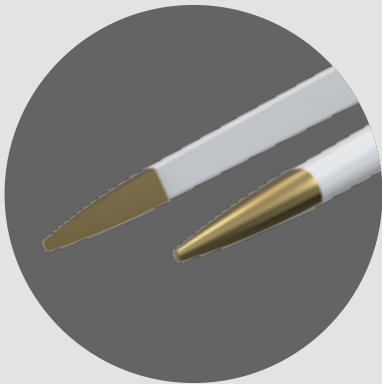
An overall solution of open surgery
ORL-HNS Thyroid Tumor Surgical System

Indicated for head and neck lymph node dissection, thyroid tumor open surgery
cutting & coagulation in open surgery of breast tumor.

AC/BC/MC 407A



Patented Design
Working with specialized generator,
with the benefits of low working temperature
and high efficiency.



Thyroid-Forceps



TR-Forceps/S

Integrated Design

Bilateral Irrigation & Suction

**With cutting, ablation, hemostasis, coagulation, peeling,
clamping and suction capabilities in one versatile device.**

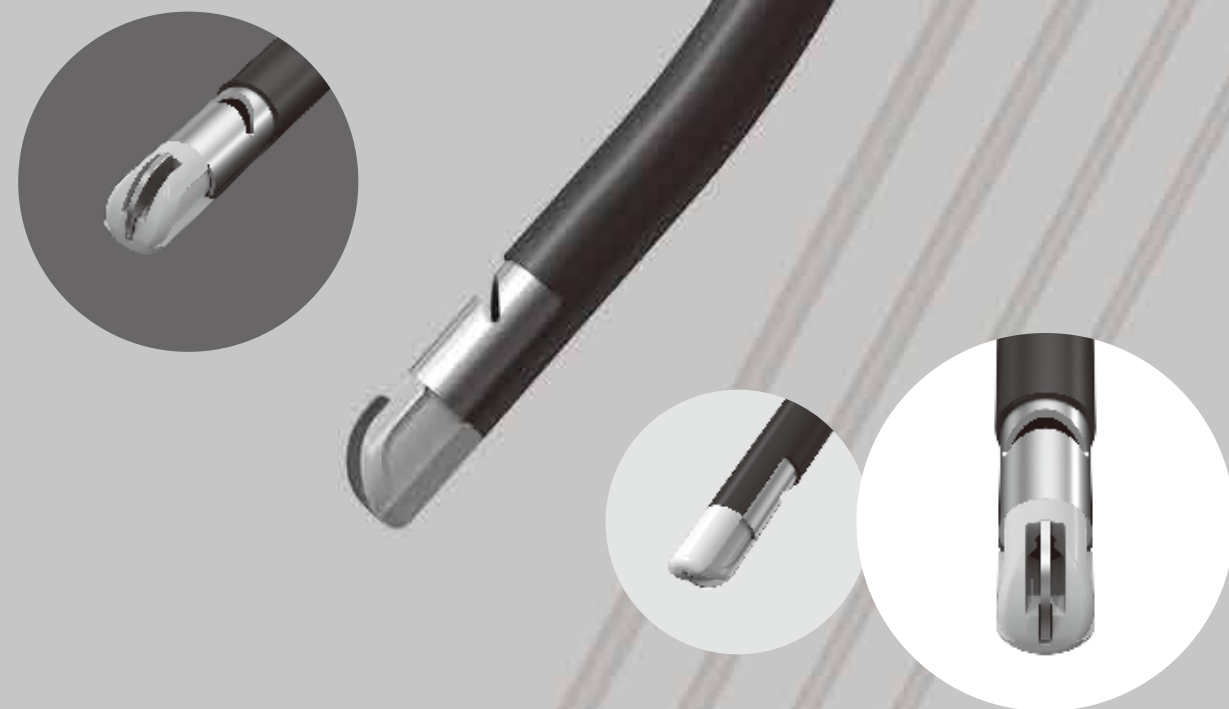
Our Technology, Your Health.

An overall solution of ENT surgery

Laryngeal Tumor Surgical System

Intended for irrigation, suction, cutting, ablation, coagulation and hemostasis in laryngeal surgery, particularly useful for pediatric patients with narrow laryngeal structure and the laryngeal minor pathologies.

AC/BC/MC 403



Thinner, Longer, More Precise

For the deep laryngeal pathologies

Our Technology, Your Health.

Patented Innovative Design, Improved Anti-blocking Capability

Patented L-shaped plate tip design, for higher ablation rate and optimized anti-blocking capability
Innovative design of curved tip surface and bilateral suction ports, makes the suction range expanded to 2.2mm², increased by 3 times than the other laryngeal design, to reduce the blockage risk.

Integrated Design with 2.5mm Diameter Tip

Precise design, with cutting, ablation, coagulation, hemostasis, irrigation and suction capabilities in one versatile device.

Reduced Thermal Damage

The electrode tip adopts special ceramic design, with insulation scope reaching 67%;
Plasma energy sheath is controlled at 100μm, with the collateral thermal damage reduced by more than 50%.

Higher Cutting & Ablation Rate and Optimized Coagulation Capabilities

With L-shaped design, it can work at both sides of the tips, which effectively enhances the cutting, ablation and coagulation capabilities. Intended for the precise cutting and ablation in laryngeal surgery.
The coagulation capability is increased by 30% and the cutting/ablation capability increased by 50%.

Anti-gravity Design

Crescent-shaped anti-gravity design of the irrigation port ensures smooth and even saline irrigation to cover the whole tip surface, for effective and continual plasma creation.

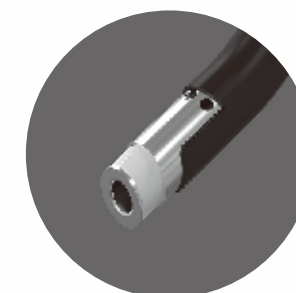
Thinner, Longer, More Precise

Bendable shaft of 2.5mm diameter and 190mm length is particularly useful for complex laryngeal structures, making it possible to reach into the larynx and the position below the glottis for precise cutting, ablation and accurate coagulation.

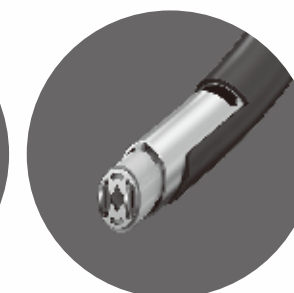
Excellent Clinical Performance

Powerful cutting, ablation and coagulation capability, to expand the clinical applications.
The small diameter shaft design can be selected for the treatment of laryngeal pathology in minimal 4-months newborns, and even congenital throat stenosis or occlusion in newborns.

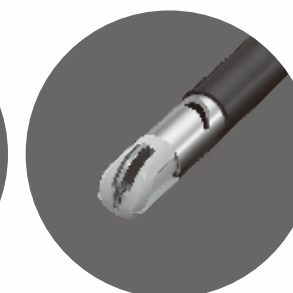
Various sizes are available for selection



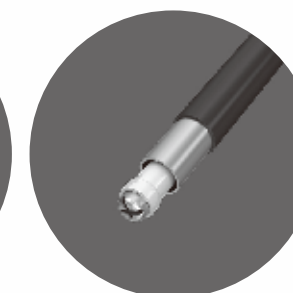
Laryn-Max



Laryn-Blator



Laryn-Neo



Laryn-Mini

An overall solution of ENT surgery

Neurosurgery & Skull Base Tumor Surgical System

Indicated for nasal surgery of sinus tumor, nasal skull base tumor and hyperplasia. Suitable for narrow area operation, particularly useful for narrow surgical site in pediatric surgery

AC/BC/MC 402



Tonsil-BlatorMax

Patented Design for Nasal and Nasal Skull Base Surgery

- Flexible shaft and various tip size are available for clinical selection.
- Excellent solution for narrow anatomical structure, with improved surgical view in structural pathology.
- Clinically tested and approved for accurate and safe ablation, cutting, coagulation and hemostasis under endoscopy.



Overall Upgrade

Stronger Capability of Cutting, Ablation, Coagulation and Hemostasis

Double U-shape structure for aggressive ablation rate, to achieve excellent clinical effect. Double U-shape structure for aggressive ablation rate, to achieve excellent clinical effect.

Improved Suction Capability

Double U-shape structure tip design, with optimized suction performance; The cross-sectional area of the suction port is designed bigger, to achieve a smooth saline flow, and clear surgical view.

Thinner Shaft

Shaft diameter ranges from precise 3.8mm to regular 4.4-6.0mm. The precise 3.8mm design is particularly useful for precise cutting, ablation and coagulation in the complex surgery of pediatric, nasal, nasal skull base, small orifice site, etc.

Safer Operation

Anti-gravity unidirectional flow design maintains a smooth irrigation and suction. Precise energy penetration control reduces collateral thermal damage and electrical leakage risk, to ensure safe operations.

Various sizes are available for selection



An overall solution of ENT surgery

**Nasal, Nasal Skull Base,
Oropharyngeal Surgical Electrodes**

Indicated for ENT surgery of nasal sinus, nasal skull base, nasal cavity hyperplasia surgery, and narrow site surgery, such as pediatric tonsillectomy & adenoidectomy.

AC/BC/MC 401

UPGRADED

- Carefully Selected and Tested Materials
- Repeatedly Verified Manufacturing Technique
- Reduced Collateral Thermal Damage
- Precise Control of Energy

Classic Design, Upgraded Effect



Tonsil-Blator



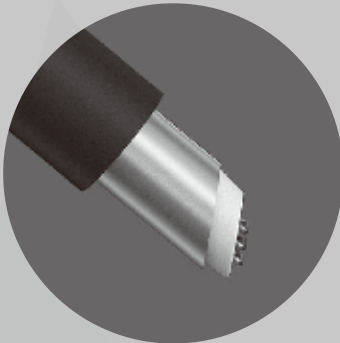
Tonsil-BlatorPT

An overall solution of ENT surgery

**Tonsillectomy & Adenoidectomy
Surgical Electrodes**

Clinical Standardization of Plasma Technology

- Multi-polar technology, with Cutting, Ablation, Coagulation, Hemostasis, Irrigation and Suction capabilities in one versatile device.
- Suitable for the clinical applications of various anatomical site and various pathology.
- Golden standard of plasma surgery.



Tonsil-BlatorAD

Pre-bended Tip Design
Particularly useful for adenoidectomy
Patented Design

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An overall solution of ENT surgery

Nasopharyngeal Ablation Electrodes

Indicated for ablation of soft palate, tonsil, uvula, tongue base, etc.
CAUP and other oropharyngeal surgery.

AC/BC/MC 303 AC/BC/MC 304 AC/BC/MC 305

- Sharp tip design for easy channeling.
- The fine shaft design of 1.6mm diameter achieves minimally invasive and precise ablation, and minimal incision.
- The shaft design with markers provides surgeons with scale guide to achieve precise ablation.
- The bending angle of shaft perfectly fits the nasal or oral structure.
- Tripolar structure design, for integrated channeling and ablation.
- Distal two circuits used for channeling, and proximal two circuits used for ablation.

TurbinEX-C

PalatEX-C

Dual-Pole-C

Bipolar Electrical Design
Used for local precise coagulation, hemostais and ablation.

Patented Innovation for

Otoscope Surgery



Oto-Blator

An overall solution of ENT surgery

Surgical System for Open and Endoscopic Surgery

Indicated for otoscope, nasal cavity, neck dissection and
other ear and nasal surgery.

1:1

BONSS

ARS700 Radio Frequency Plasma Surgical System



Global Brand
BONSS Plasma Tech

How It Works

ABLATE

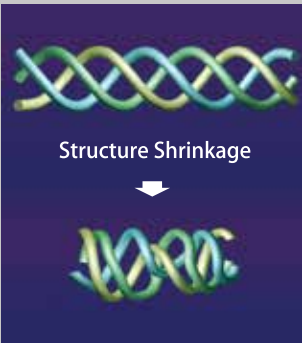
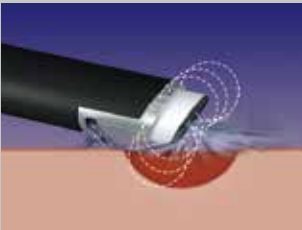
The Radio Frequency energy flows through active electrode and return electrode, and by the conductive saline solution it generates precisely focused plasma sheath around the electrodes. The plasma sheath consists of massive charged particles which can generate sufficient energy of strong oxidizing when accelerated by the electric field. The generated energy is powerful enough to break the organic molecular bonds within the tissue, and make the tissue rapidly dissolved into molecular and atoms level at a relatively low temperature of 40-70°C. The device provides rapid and efficient ablation and resection capabilities of soft tissues in a relatively low temperature.

COAGULATE

When RF energy acts on tissue (including blood), around the electrode tip it generates Joule heat and electromagnetic wave effect which provide an immediate coagulation of tissue protein and sealing of small blood vessels, thus coagulation and hemostasis capabilities of target tissues are realized.

The surgical process by plasma ablation creates well-distributed coagulative necrosis for efficient hemostasis while preserving the mucosa and fibrous tissue. Compared to that of conventional surgical methods, its post-operative recovery is improved.

Different from the traditional thermal coagulation by high temperature, plasma technology can make the working temperature controlled at 40-70°C, and coagulate helical structure of collagen molecules meanwhile preserving the cells vitality.



Excellent Performance



Systematic Working Mode

Two working modes:
ABLATE for resection and ablation activated at Yellow control panel and Yellow foot pedal.
COAG for coagulation and hemostasis activated at Blue control panel and Blue foot pedal.

Adjustable Coagulation Capability

Enhanced coagulation mode can improve hemostasis capability while providing clear surgical vision.

Intelligent Control System

Designed with automatic identification of electrodes, foot switch and power supply, which are displayed respectively on the device control panel, and automatic default power output value for different electrode designs.

Automatic Protection

The electrical circuit system can constantly monitor power output and automatically suspend power output when there is instantaneous peak current. For example, it will automatically suspend radio frequency output when electrode contacts metal, and automatically resumes work after electrode has returned to a proper distance.

Ablation with Endoscope

Under the nasopharyngolaryngoscope or bronchofiberscope, the electrodes can reach into deep position to perform ablation process. Low temperature avoids risk of smoke and carbonization, providing an innovative surgical solution for laryngeal disease.

Foot Switch

The water-proof, pressure-resistant and convenient foot switch has two working modes of ABLATE and COAG, each identified in different colors and working sounds.

Integrated Function

In one versatile single-use electrode, it provides ABLATE for resection and ablation, COAG for coagulation and hemostasis, irrigation and suction capabilities. The integrated suction electrode enhances surgical vision, controlled resection for rapid removal of soft tissues.

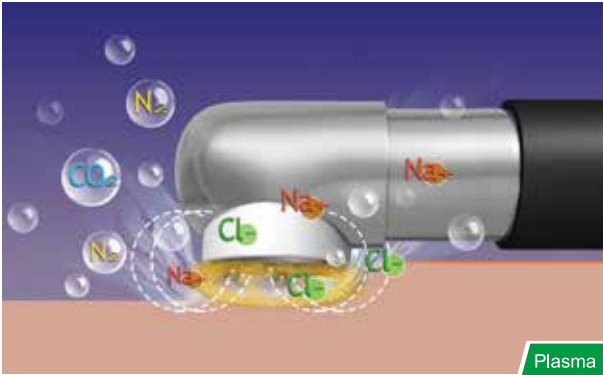
Flow Control Unit

The Flow Control Unit runs synchronously with the generator. It can be turned on or off automatically when the generator is activated or stopped, to ensure sufficient saline for surgical process.



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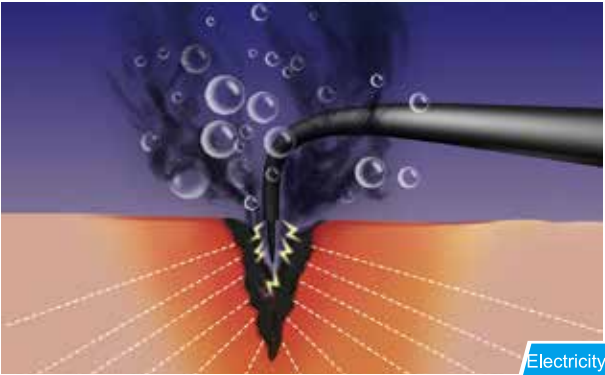
Global Brand
BONSS Plasma Tech



Surgical Wound by Plasma System

Plasma Surgical System	Electrosurgical System
Generate Plasma Layer	Arc
Break Molecular Bonds	Cells Evaporation
40-70°C	300-600°C
Work in Saline Solution	Can't Work in Saline Solution
Bipolar	Monopolar
Thermal Damage of 1 mm	Thermal Damage of 3-5 mm
Not Carbonized	Carbonized

Plasma Surgical System VS Electrosurgical System



Surgical Wound by Electrosurgical System

Plasma Surgical System	Cutting by Laser
Tissue Decomposition	Cells Evaporation
40-70°C	300-600°C
Less Thermal Damage	More Thermal Damage
Light Patient Pain	More Patient Pain

Plasma Surgical System VS Laser

Advanced Surgical Method

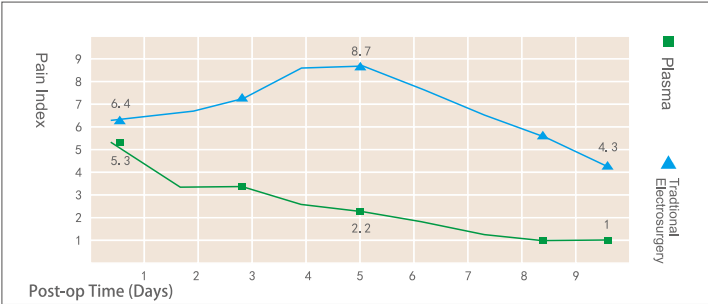
Different from the traditional method, it only uses one single plasma electrode to complete the surgical process.



Reduced Patient Pain

Compared to that by conventional method of microwave or laser, the patient pain by plasma technology is reduced significantly. Normally the patient can resume oral intake in the same day after procedure.

Pain Study (P<0.001)



Less Blood Loss

Excellent coagulation and hemostasis effect, even no blood loss in certain surgical process. Coagulation energy is adjustable. The blood loss of tonsillectomy by plasma technology can be controlled below 2ml while by traditional surgery the blood loss can reach 100ml.



Plasma

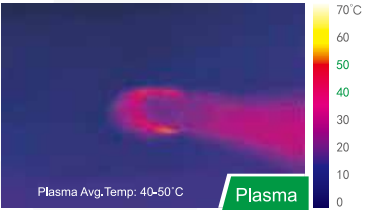


Electrosurgery

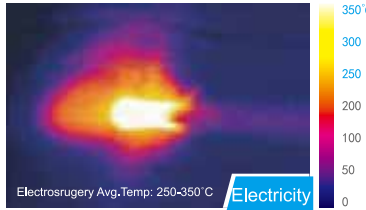
Comparison of Plasma System and Traditional Electrosurgery System in Tonsillectomy

Low Working Temperature Less Thermal Damage

Based on integrated capabilities, saline flow control system and the temperature control technology of generator, the working temperature at the electrode tip can be controlled at 40-70°C, and energy penetration controlled within 100 microns.

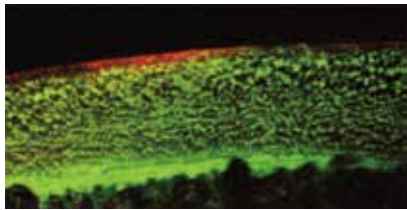


Plasma



Electricity

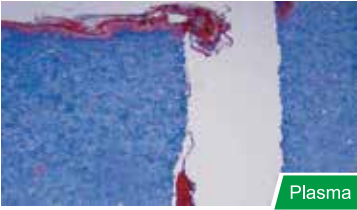
Infrared image of Plasma & Electricity



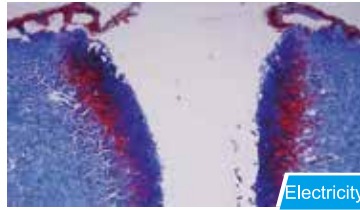
Less Thermal Damage By Plasma

Reduced Thermal Damage Fast Recovery

Reduced thermal damage to deep and healthy tissues, with fast post-operative recovery.

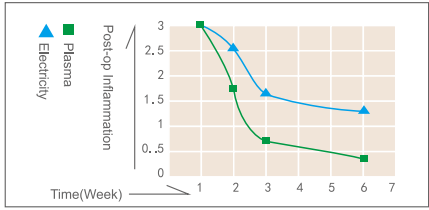


Plasma



Electricity

Comparison of Thermal Damage Between Plasma & Electricity



Comparison of Post-op Inflammation Degree By Plasma & Electricity

Shortened Hospital Stay Time

The hospital stay for patients treated by plasma technology can be shortened by 2-4 days, compared to that by conventional surgical methods .