

Our Technology. Your Health.

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



Sports Medicine

Bipolar Radio Frequency Plasma Surgical Electrodes
Radio Frequency Plasma Surgical Systems

CFDA



CE 0197





Global Brand
BONSS Plasma Tech

Specialized in Minimally-invasive RadioFrequency
Plasma Technology for Sports Medicine Surgery

Radio Frequency Plasma Surgical System

Revolutionary Technology with **Precise Controlled Soft Tissue Ablation**

Integrated Cable Design

Suction electrode is for fast and precise resection of soft tissues. Its visibility is enhanced, and more controlled in resection. Other than removing the bubbles that may block the surgeon's vision, it can also suck the free-floating small tissues to the suction tube. Thus, the surgeon can focus on the procedures instead of spending valuable surgery time on chasing small tissues.

Precisely-engineered Arthroscopic Electrodes,
To Ensure Precise Control in Arthroscopic Procedures.



90 Degree Design

Easy to Access to the Target Tissues
Precise Ablation & Coagulation
Suitable for General Diseased Synovium
Resection and Soft Tissue Resection

Narrow Shaft Design

Allows for Better Access
to Narrow Spaces

EZ-Blator 90

AC/BC/MC 405

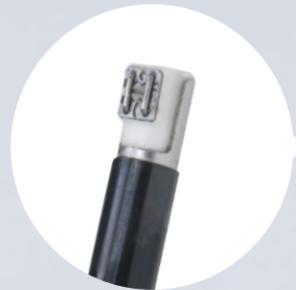
Low Profile Design
High Ablation Rate
Controlled Suction



NeoBlator90

AC/BC/MC 405

Finer square shape tip design
More controllable
High ablation rate
Controlled suction



Suction Control

BONSS Electrodes suction capability ensures a clear arthroscopic field while achieving fast, effective and precise soft tissue removal.

Procedures

Knee Arthroscopy

- Meniscus Resection
- Articular Cartilage Sculpting
- Cruciate Reconstruction
- Lateral Release

Shoulder Arthroscopy

- Subacromial Depression
- Frozen Shoulder Release

Hip Arthroscopy

- Labral Debridement

Features

Innovative suction port design of single-hole and star-shape enhances its suction capability. Fast and precise ablation achieves effective surgical outcome. Powerful coagulation achieves excellent hemostasis effect. Innovative sieve tip design is good for speedy ablation and powerful suction. Classic 90-degree tip design makes easy access to lesion and accurate ablation & hemostasis.

Innovative Radio Frequency Plasma Technology

Platform Ensures Reproducible Surgical Outcomes for Arthroscopic Surgery.

Bevel Design

Low profile design allows for access into tight spaces. The EZ-Blator 50 also provides suction ensuring clear arthroscopic vision, removing soft tissue debris and the air bubbles created by the plasma ablation.



Meni-Blator50

AC/BC/MC 404

Electrodes with suction capability can ensure a clear surgery vision while achieving a fast and precise soft tissue removal. They can also remove the bubbles that may block the surgeon's vision while achieving an effective floating tissue removal.



Versatile Angle Design

Design of small shaft and special tip angle provides excellent controllability and precise tissue resection for surgeons.

Max-Blator50

AC/BC/MC 404

Procedures

Knee Arthroscopy

- Meniscus Resection
- Chondroplasty
- Cruciate Reconstruction
- Lateral Release



StaBlator90

AC/BC/MC 405

Knee arthroscopy
meniscus and joint
shoulder decompression
surgery
Cartilage surgery
cruciate ligament
reconstruction
shoulder arthroscopy



TendonRX

AC/BC/MC 306

Used for chronic tendon diseases, e.g. tennis elbow
plantar aponeurosis
tendinitis achillea
calcanodynia and shoulder
periarthritis



Hip-Blator50

AC/BC/MC 404

Hip Arthroscopy

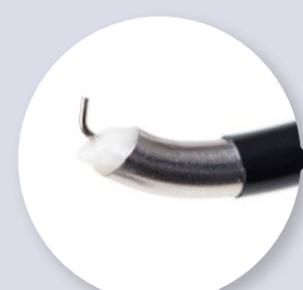
Long shaft allows easy access to hip anatomy to perform precise tissue ablation and coagulation.



ReleaseRX

AC/BC/MC 306

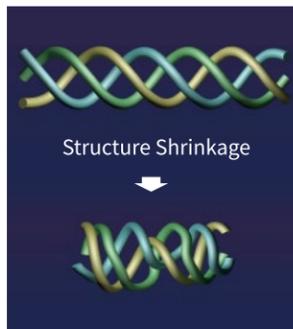
The hook shape electrode is designed for soft tissue resection and coagulation. Ideal for Lateral Release in the Knee and Frozen Shoulder Release.



ARS600 Radio Frequency Plasma Surgical System



How It works



The Surgical System adopts unique technology of controlling radio frequency emitting, whose power output can exactly produce plasma energy. Optimized power output can produce plasma energy effectively and speedily while minimize the thermal energy in the joints.

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 providing 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 past 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.

Enhanced Coagulation

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

Intelligent Control System

Designed with automatic identification of electrode, foot switch and power cord, displayed 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, the generator will automatically suspend radio frequency output when electrode contacts or is close to metal, and automatically resumes work after electrode has returned to a proper distance.

Bipolar and Multi-polar Technology

Various bipolar and multipolar electrode designs are available. Around the electrode tip, sufficient and stable plasma layer is generated for rapid resection, ablation, coagulation and hemostasis of soft tissues.

Foot Switch

The waterproof, pressure-resistant and convenient foot control 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, and suction capabilities. The integrated suction electrode enhances surgical vision, controlled resection for rapid removal of soft tissue.

Temperature Control Technology

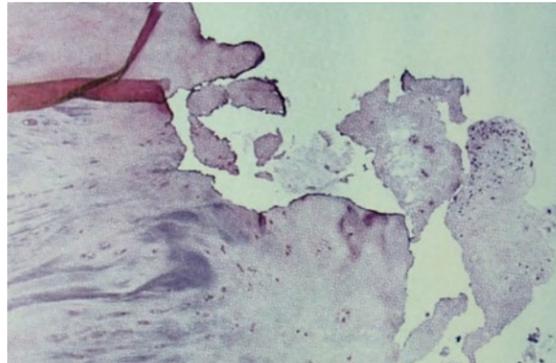
The surgical process by plasma technology is performed at controlled 40-70°C. It uses a controlled, non-heat driven process in which bipolar radiofrequency (RF) energy excites the electrolytes in a conductive medium, usually normal saline solution, to create a precisely focused and charged plasma gas. The energized particles in the plasma have sufficient energy to break the organic molecular bonds within tissue, causing tissue to dissolve at relatively low temperatures of 40-70°C. Radiofrequency current does not pass directly through tissues, causing minimal tissue thermal effect. By temperature control technology, the generator automatically optimizes output value according to the plasma layer status around the electrode tip and the target tissue feature, by which electrode can provide a stable and efficient capabilities while keeping the lowest working temperature.

Timer

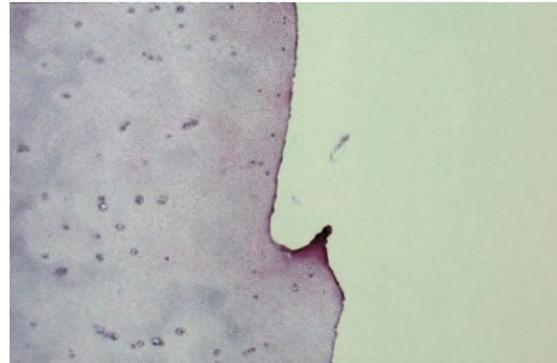
When the special electrode with time control is selected, the generator automatically recognize the electrode and start to count the active time by 100ms.

Advantages of Using RF Plasma Technology in Arthroscopy

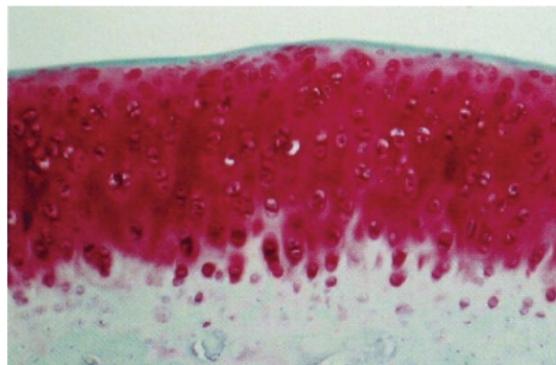
- Excellent Hemostasis Capability
- Flexible and Convenient for Surgeons
- Less Damage and Thermal Penetration
- Lighter Post-operational Tissue Exudate and Swelling
- No Fibroplasia Caused from "Tear" Damage of Traditional Unloading Instruments
- Widely Applicable in Knee, Hip, Shoulder, Elbow, Wrist and Foot & Ankle Arthroscopy
- Complementary to Traditional Mechanical Tools, and even to Replace Some Functions in Cartilage-plasty



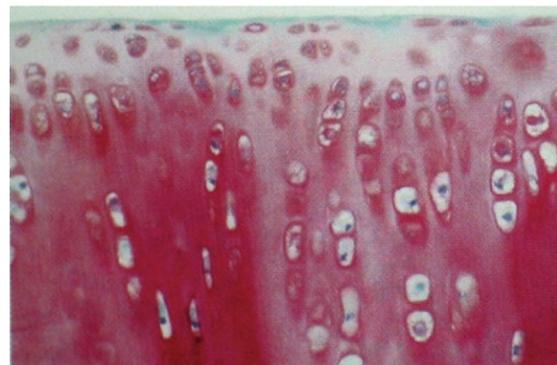
The damaged cartilage is un-smooth with tissue fragment before RF plasma electrode treatment.



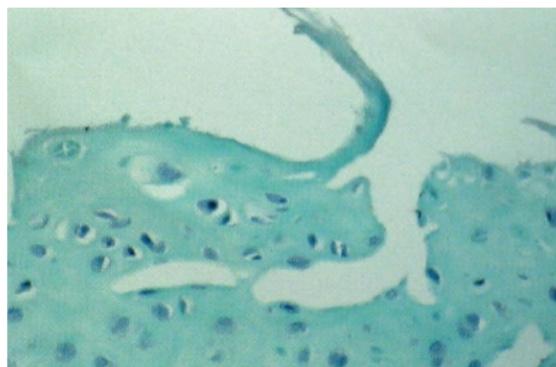
The cartilage is smooth and flat after treated with RF plasma electrode



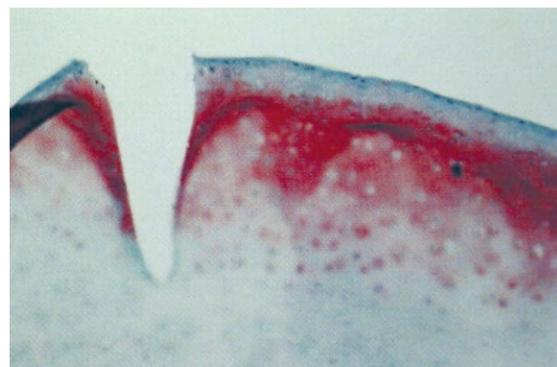
Sample of Normal Cartilage



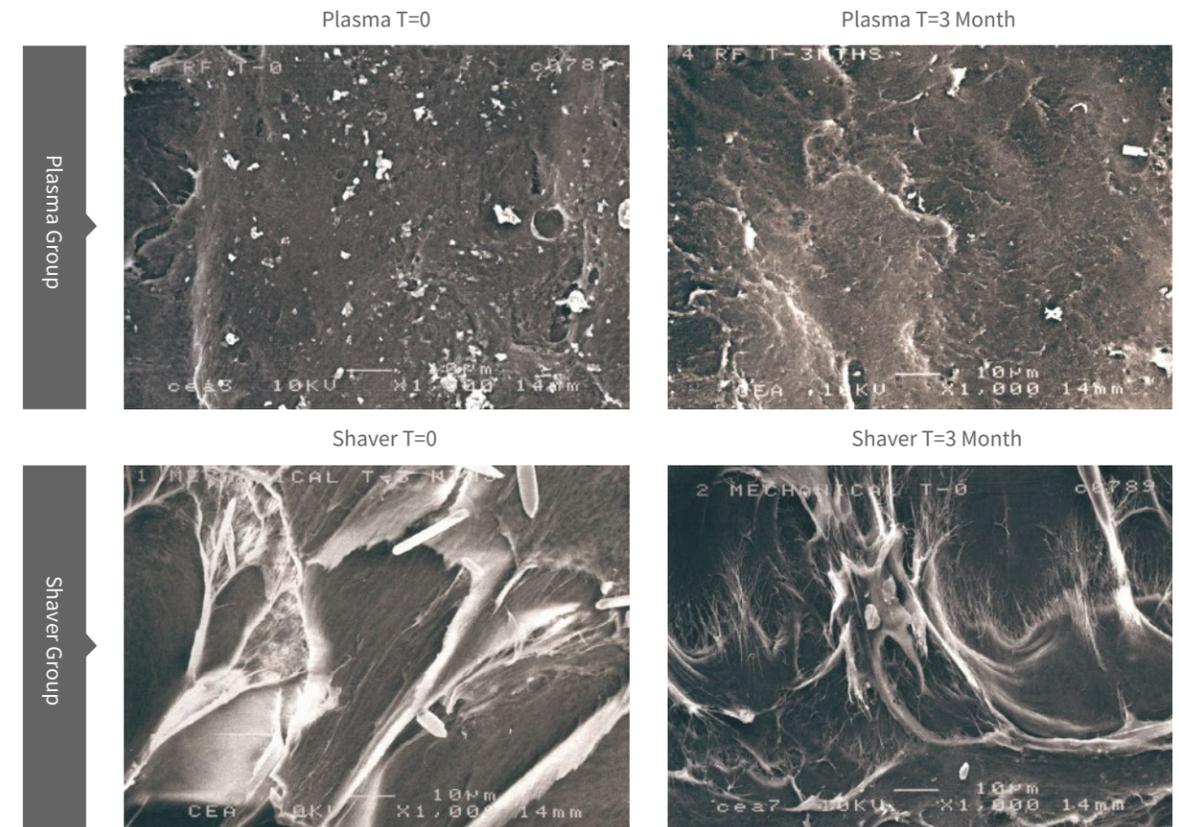
The normal cartilage tissue subjected to RF plasma electrode treatment is cytoactive with sound cartilage surface.



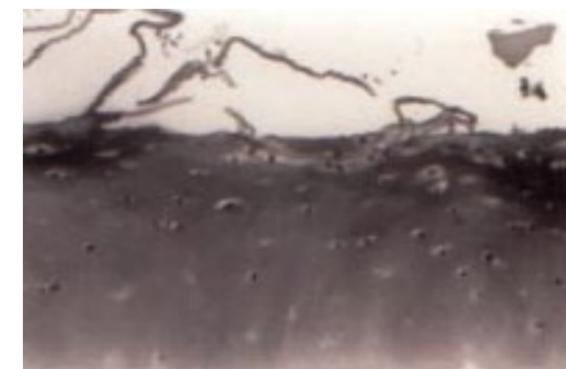
The surface of damaged cartilage but not treated by RF plasma is unstable and expandable.



After RF plasma treatment, the damaged area didn't expand or show any rift fibrosis.



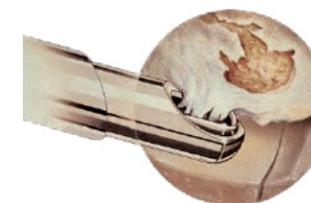
According to published research results, it shows that Mechanical Shaving System leads to unstable and unsmooth cartilage surface which may cause crack and fracture.



Fibrosis by Shaver



Smooth by Plasma



The Problems by Mechanical Cartilage-plasty

- Difficult to Access to Diseased Location
- Extra Normal Cartilage Removed
- Unstable Edge Remains
- Rough Surface

In conclusion, we can get better cartilage surgery outcome from plasma than shaver.