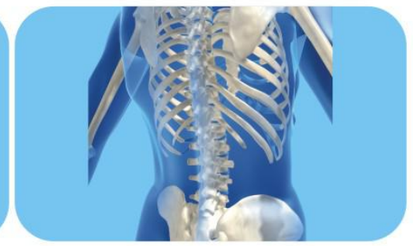
GAOTON

GAOTON MEDICAL

ORTHOPEDICS
Low Temperature Plasma Surgery System

Manufacturer Of Low Temperature Plasma Surgical System



Nucleoplasty, Minimally Invasive Spinal Surgery
Perfect Partner, Coagulation under Spinal Endoscope Surgery
Sports Medicine Surgery under Arthroscope

Xi'an Surgical Medical Technology Co.,ltd.

Xi'an GAOTON Technology Development Co.,ltd.

Tel: 86-29-83334444

Fax: 86-29-87455955

E-mail: info@gaotontech.com

Web: www.gaotontech.com

Add: No. 268, Caotan 6th Road, Caotan Eco-Industrial Park, Xi'an, Shaanxi, China

ACCURATE
LOW TEMPERATURE
MINIMALLY INVASIVE

Company Overview

GAOTON Medical focuses on research, development, manufacture and sales of low temperature plasma surgery system, and has three professional medical companies. Since the end of last century, Gaoton Medical has been dedicated to the research and development of low temperature plasma surgery technology and probe (electrode) and other related equipment, so as to achieve dedication, professionalism, specificity and accuracy in the field of low temperature plasma surgery.

Higher international quality standards

Exquisite and rigorous production process, high standard product quality. our products have been awarded international CE, ISO13485 certification and domestic registration license – CFDA.

Irreplaceable advantages

In the field of plasma, we have many national patented products. The exclusive patented built-in pulverizing electrode solves the block problem at cutting tip of suction tube, making the operation more smooth.

Wide application field

Products are applied for the department of Orthopedics, Pain Management, Spinal, ENT, Neck surgery, Ophthalmology, Urology, Gastroenterology and Respiratory Medicine, etc.

Strong R&D team and excellent after-sales service.

Our research and development team consists of senior technical experts with rich experiece and specialized background.

Our after-sales service system can provide excellent service.

Summary Of Plasma Surgery System

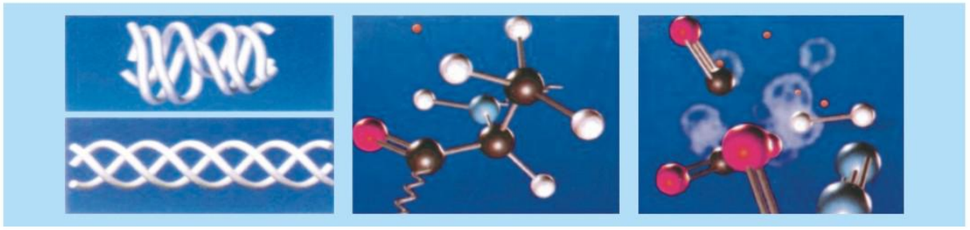
Operation Theory

Plasma state is generated by stimulating medium like sodium chloride in collagen molecule when multi-polar probe is connected with electric energy under specific waveform. The highly energized particles in the plasma can break down molecules in the tissue and separate tissue protein into low molecular weight gas such as H_2, O_2, CO_2, N_2 and methane , thus achieving vaporization, cutting, perforation, ablation, shrinkage, peeling, hemostasis, repair and other operations.

Advantages

The low-temperature plasma thin layer which is formed at electrode tip can accurately ablate nucleus pulposus and have unique advantages:

- Plasma bipolar Probes require small current to ablate target effectively in 5 seconds.
- The temperature is between 40℃ ~ 53 ℃ during plasma ablation, with no thermal damage to surrounding tissues.
- Real time ablation function. Decompression effect can be observed obviously during surgery.



The molecular structure before & after shrinkage

The molecular structure BEFORE decomposition

The molecular structure AFTER decomposition

Clinical Application

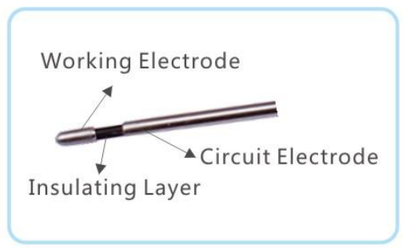
- Nucleoplasty, Target Ablation, Plexus Block under C arm or CT
- Vaporization, Ablation, Coagulation under Spinal Endoscopy Surgery
- Knee, Shoulder, Hip, Small Joint and Tendon Disorders Surgery under Arthroscopy

Plasma Nucleoplasty

Patented Technology

Bipolar Probe
Patent Name: Puncture spinal decompression device
Patent Number: ZL2013 20724 764.6

Target Ablation,
Accurate Control,
High Quality Material



Cervical Disc Ablation

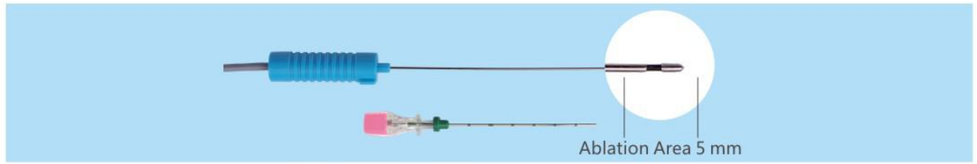
The patient should be prone position with local anesthesia. Insert the puncture needle into central position of cervical disc under the guidance of C arm or CT.

Pull the needle core out and add 3~ 5 drops of normal saline into needle sheath, then put into the plasma probe and detect position of probe.

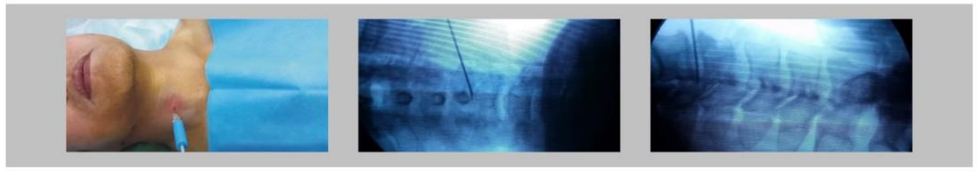
Adjust console to lowest power level and step on blue pedal for one second to observe patient's reaction. If adverse reaction occurs, adjust position of probe.

When probe reaches best position, adjust console to appropriate power level and carry out ablation for 5 to 8 seconds by stepping on blue pedal. If needed, carry out vaporisation for 5 seconds by stepping on yellow pedal.

If further ablation is needed, the above procedure can be repeated (twice at most).



DXR-G0900-A105 Cervical Vertebrae Probe



Plasma Cervical Disc Ablation Guided By C Arm.

Cervical Disc Ablation Area

Single Point Ablation Area	Power Level	Working Time
3×5mm	3	5 s
5×5mm	2	6 s

Lumbar Disc Ablation

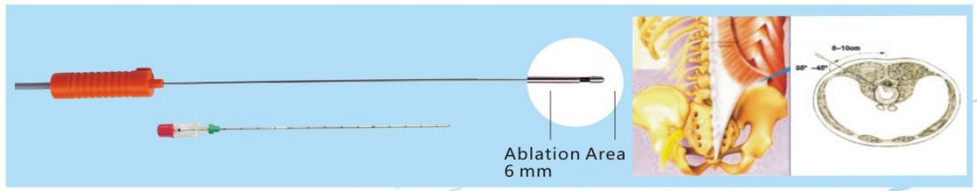
The patient should be prone position with local anesthesia. Insert the puncture needle into central position of lumbar disc through "safe triangle" under the guidance of C arm or CT.

Pull the needle core out and add 3~ 5 drops of normal saline into needle sheath, then put into the plasma probe and detect position of probe.

Adjust console to lowest power level and step on blue pedal for one second to observe patient' s reaction. If adverse reaction occurs, adjust position of probe.

When probe reaches best position, adjust console to appropriate power level and carry out ablation for 10 seconds by stepping on blue pedal, then carry out vaporisation for 8 seconds by stepping on yellow pedal.

If further ablation is needed, the above procedure can be repeated (three times at most).



DXR-G1100-A185 Lumbar Vertebrae Probe

Puncture Point

Lumbar Disc Ablation Area

Single Point Ablation Area	Power Level	Working Time
3 × 6mm	3	5 s
5 × 6mm	2	6 s

Lumbar Disc Perforation Area

Lumbar Disc Perforation Area	Twitch times	Power Level
3 × 10mm	3 ~ 5	3
4 × 10mm	4 ~ 5	2

Lumbar Disc Target Ablation

Lateral Ablation

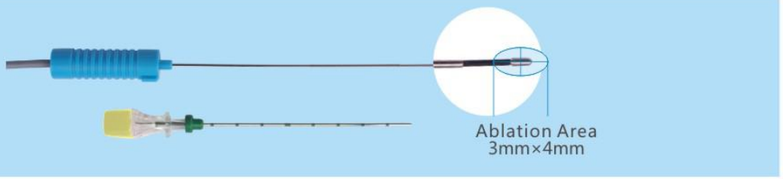
Insert the puncture needle through "safe triangle" under the guidance of C arm or CT, add 3~ 5 drops of normal saline, then put the lateral probe into target position, keeping at least 2mm distance from spinal dural.

Set up one second on test power level and step on blue pedal immediately. If no adverse reactions, reset ablation power level & ablation time or continue 1 second ablation several times to complete ablation.

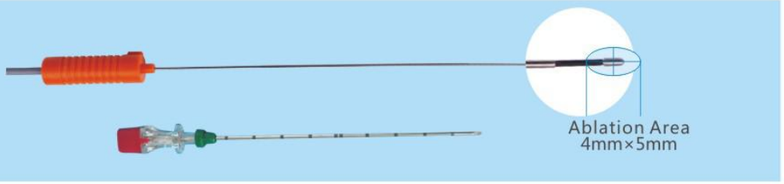
Posterior Ablation

Insert the puncture needle out spinal dural for at least 2mm, add 3~ 5 drops of normal saline, then put posterior probe into needle sheath and observe it reach targeted position.

Set up one second on test power level and step on blue pedal immediately. If no adverse reactions, reset ablation power level & ablation time or continue 1 second ablation several times to complete ablation.



DXR-G0700-A123 Lumbar Posterior Target Ablation Probe



DXR-G0900-A178 Lumbar Lateral Target Ablation Probe

Target Ablation

Plasma Vaporization, Ablation, Coagulation Under Spinal Endoscope Surgery

DZX-G3040-A340 Intervertebral Disc Endoscopic Probe

Plasma technology and endoscopic discectomy are the most advanced surgery combination.

- The temperature of plasma arc thin layer is between 40℃ ~ 53 ℃, with no damage to surrounding tissues and nerves.
- New gold plated probe tip will prevent adhesion and carbonization.
- The outer diameter of plasma probe is less than 2.7mm and the handle is adjustable. Plasma probe is much easier to vaporize, cut and ablate tissue in intervertebral disc which is difficult for forceps to reach.

SM-D380D
Device for Spinal Endoscope Surgery

Plasma Sports Medicine Surgery under Arthroscope

Indications and Contraindications

Indications : The devices are widely used for cutting, ablation, hemostasis and heat shrinkage of soft tissues under low temperature .Currently it is the only surgery system that can be applied to the knee joint, shoulder joint, hip joint, small joints, articular cartilage, tendon disorders and spinal surgery.

Contraindications: Patients with electronic implants or heart pacemakers.

Multifunctional Plasma Probe Under Arthroscope

DQG–G4100–A120

Facade Probe

Indications: Synovial membrane debridement & excision for knee and shoulder joint

Specification:

- 90° Angle, diameter 4.1 mm, 14 electrodes on tip
- Effective and efficient
- Unique suction function makes clear vision during surgery

DQG–G2820–A120

Curve Cutting Probe

Indications: For soft tissue which is difficult to reach, such as posterior horn of meniscus, synovial membrane, cartilage.

Specification:

- 30° Angle shaft and tilted cutting surface for meniscus, camber tissue
- Electrode surface tilt 15° to fit the meniscus
- Low-temperature, efficient ,multipoint working electrode
- Diameter 2.8 mm, cutting depth 1.5mm, for narrow space joint like knee and shoulder.
- Unique suction function makes clear vision during surgery

DQG–G3530–A120

Bevel Probe

Indications: Lateral retinacular slack, Glenoid labrum laceration, Triangular fibrocartilage resection

Specification:

- Cutting depth 1mm, 10- electrode cutting repairing probe
- Probe tip tilt to fit tissue
- Unique suction function makes clear vision during surgery

DQG–E3020–A120

Hooklike Probe

Indications: Cutting meniscus, lateral retinacular slack for knee and shoulder

Specification:

- Diameter 0.6 mm electrode, 90°angle hooked electrode
- 30 ° angle probe to fit tissue
- Unique suction function makes clear vision during surgery

WWW.GAOTONTECH.COM

DXR–G2525–A130

Curve Ablation Probe

Indications: Shrink of ligament, tendon, joint capsule

Specification:

- Spherical tip, Large contact area
- Diameter 2.5 mm, 25 °adjustable angle
- Penetration depth in 1~3mm, energy release stable

DXR–G2820–A120

Plane Probe

Indications: 2~3 level chondromalacia

Specification:

- More accurate cutting depth than mechanical knife
- Annular electrode, bubble only discharged from the ring by venturi effect.
- Concave tip, protect articular cartilage

DXR–G1100–A185(210)

Lumbar Vertebrae Probe

Indications: Synovium ablation & resection for Lumbar disc, knee, shoulder and small joints

Specification:

- Diameter1.1~1.5mm, cannula diameter 2mm
- Effective and efficient

DQG–E4630–A130

Soft tissue Probe

Indications: Cutting, stripping, hemostasis, repair of knee joint synovial, narrow structure and cartilage

Specification:

- Incision length only 0.4mm
- No the thermal damage

SM-D380C Multifunctional Device

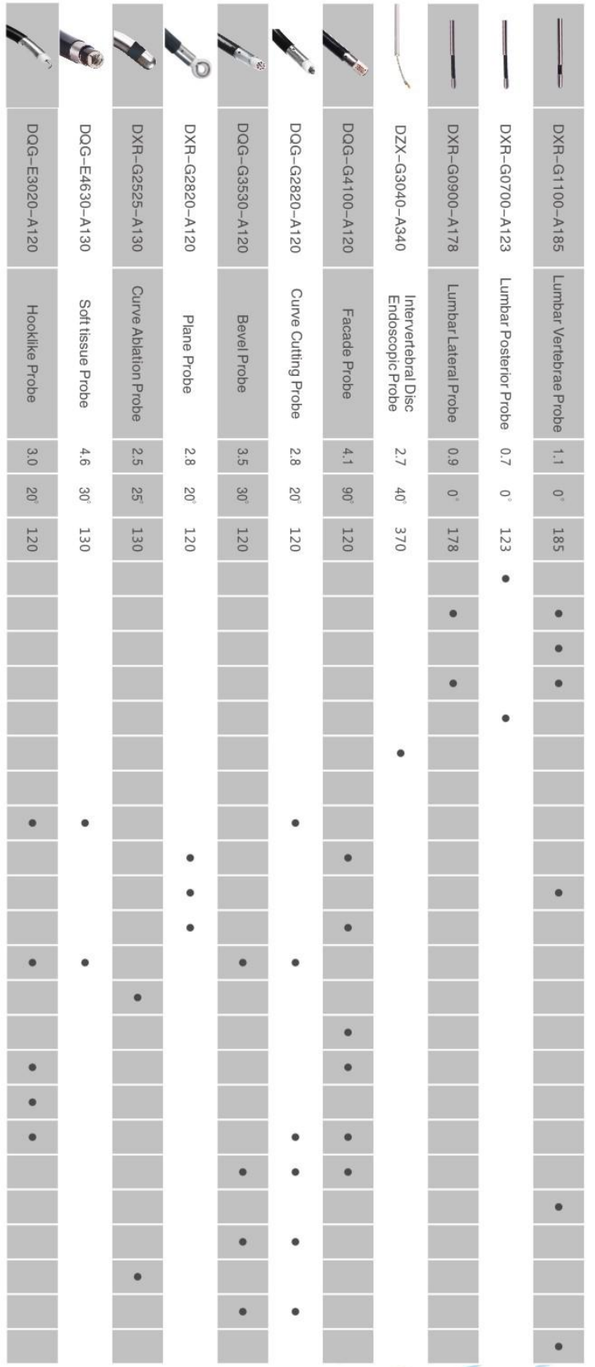


photo	Model	Name	D/A (mm)	Angle	Length (mm)	Cervical ablation	Lumbar disc ablation	Lumbar disc vaporization	Lumbar lateral target ablation	Lumbar posterior target ablation	Intervertebral foramen endoscopic vaporization,coagulation	Intervertebral disc endoscopic vaporization, coagulation	Meniscectomy	Intercondylar notchplasty	Articular cartilage debridement	Synovectomy	Lateral retinaculum tenolysis	Ligament tendon atrophic shrink	Subacromial decompression	Frozen shoulder release	Rotator cuff resection	Slide cystectomy	Glenoid labrum laceration	Tendon debridement	Wrist triangular fibrocartilage complex	Ligament tendon thermocoagulation	Articular cartilage plasty	Plantar tendon perforation
		Plasma Multifunctional Surgical System				Spinal Surgery							Knee Surgery						Shoulder Surgery						Wrist, Elbow Ankle Surgery			
	DXR–G0900–A105	Cervical Vertebrae Probe	0.9	0°	105	•				•																		
	DXR–G0700–A123	Lumbar Posterior Probe	0.7	0°	123	•				•																		
	DXR–G1100–A185	Lumbar Vertebrae Probe	1.1	0°	185		•	•	•						•									•				
	DXR–G0900–A178	Lumbar Lateral Probe	0.9	0°	178		•		•																			
	DZX–G3040–A340	Intervertebral Disc Endoscopic Probe	2.7	40°	370						•																	
	DQG–G4100–A120	Facade Probe	4.1	90°	120								•	•					•	•		•	•					
	DQG–G2820–A120	Curve Cutting Probe	2.8	20°	120								•				•					•	•		•	•		
	DQG–G3530–A120	Bevel Probe	3.5	30°	120																							
	DXR–G2820–A120	Plane Probe	2.8	20°	120									•	•	•												
	DXR–G2525–A130	Curve Ablation Probe	2.5	25°	130													•			•					•		
	DQG–E4630–A130	Soft tissue Probe	4.6	30°	130								•	•			•											
	DQG–E3020–A120	Hooklike Probe	3.0	20°	120								•															