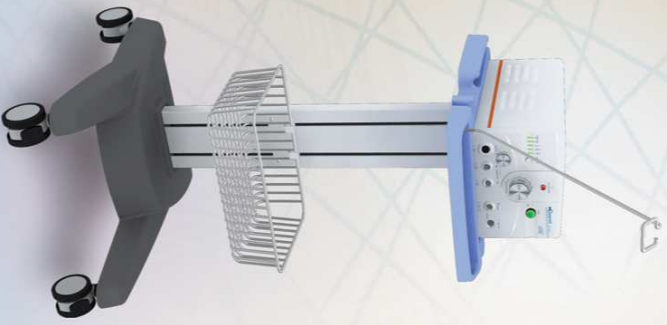


Dr. Oppel RF

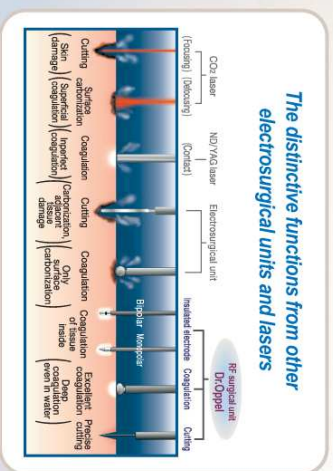
RADIO FREQUENCY ELECTROSURGICAL DEVICE



What is the 4MHz Radio Frequency Surgical Unit?

Dr-Oppel's electrode is not being heated by itself. Electrode lets the cellular tissue produce the joule heat, and operates hemostasis, cutting, and coagulation. 4MHz radio frequency makes possible precise cutting and deep coagulation even in water. Moreover, coagulation depth is determined by electrode as 5mm, 3mm, and 2mm.

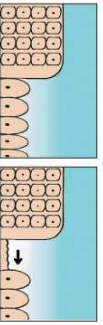
There is no carbonization and damages to the surrounding cellular tissue by electric spark, and safety can be secured because this system is free from electric shock and burn which current electric surgical units make.



OB / GYN

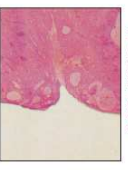
Radio frequency coagulation for Cervical Erosion

▶ The mechanism of erosion cure



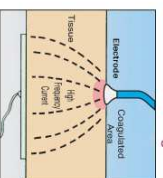
When columnar epithelium is detected in a special way, the erosion is cured by regression of the near squamous epithelium.

▶ Cause of residue and relapse of columnar epithelium in erosion cure



Since there are lots of unexpected cases when nabothian cysts are deeply formed in a patient's cervix, even though columnar epithelium is detected with drug, cauterization, and cryosurgery, the perfect cure is said to be hard due to the difficulty of regression of squamous epithelium resulting in insufficient removal of columnar epithelium. For perfect removal of erosion, 5mm depth of coagulation is needed.

▶ What is RF coagulation?



It's a way of coagulation necrosis to the 5mm depth of tissue, when the radio frequency current flows from electrode, passing tissue, to the patient plate, by producing joule heat on the tissue itself close to electrode. It's very hard to make necrosis with cauterization or cryosurgery because no deep coagulation is capable. However, coagulation necrosis is perfectly achieved in the coagulation with radio frequency current because electrode lets the tissue itself produce joule heat.

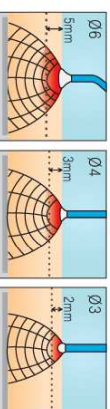
▶ Coagulation range



First, insert 0.6mm semi-ball type electrode into the os to 1-1.5cm depth and start coagulation until boiling noise is heard, and then rotate electrode and start all areas of erosion. In addition, perform coagulation on the normal squamous epithelium of ectocervix region to be 2mm-3mm overlapped.

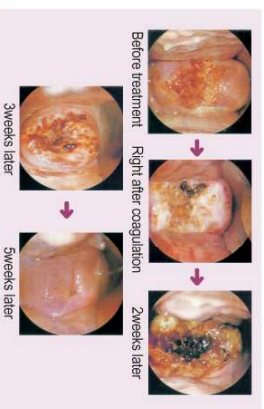
Caution For 5mm depth coagulation without carbonization, please rub the part with the electrode.

▶ Self control of coagulation depth



The coagulation depth is decided by the electrode size and the device is designed to make different coagulation depth by the electrode size as above.

▶ Healing progress



▶ Pain during operation

• As a rule, no anesthesia is needed. At times, there are some patients who feel painful, but most are operated easily without anesthesia. Only multiparous women is occasionally needed for anal.

▶ Late Bleeding

• If the coagulation depth is shallow, necrosis region could be not enough and bleeding could occur due to vascular exposure. In this case, columnar epithelium is still remaining and squamous epithelium isn't repaired. The important thing, in this case, is to perform coagulation to the 5mm depth with care in an early stage of the practice. In addition, warn the patient to be careful not to have necrosis region separate by exercise or sexual intercourse. Therefore, to prevent late bleeding, it's required that the necrosis region should be remaining after separation for 3 weeks until the blood vessel closes up.

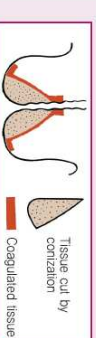
▶ Side effects

• No report has been made about side effects such as infertility and atresia of cervix caused by excessive coagulation.

Radio frequency coagulation for CIN lesion

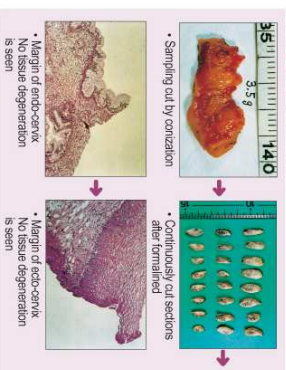
- ▶ Special points
 - Capable of a simple operation on an outpatient basis.
 - Tissue sample is used for pathology reading.
 - No general anesthesia is needed. Coagulation procedure takes only several seconds after local anesthesia.
 - Various angles of coagulation and 3-4 minutes in coagulation).
 - Perfect bleeding control.
 - No suture is needed after coagulation.
 - Short healing period (4-5 weeks).

▶ Radical Coagulation by HFSU

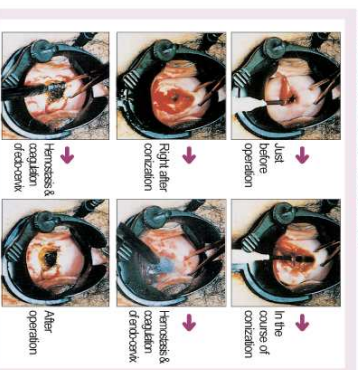


• Coagulation is performed for bleeding control and necrosis of the remaining lesion after coagulation

▶ Biopsy by coagulation

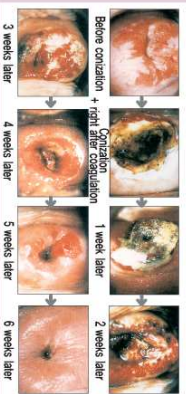


▶ Procedure of radical coagulation















• Firstly, place a patient on the operating table and carry out vaginal douche. And then, place the patient plate on the hip and expose the cervix. Secondly, after sitting a coagulation electrode in the hand piece, start the coagulation from the part where no lesion is inferred to exist, and operate without a break. In this case, to proceed properly, cut by rotating coagulation electrode at 180 degrees, and then stop off from the foot pedal. Continuously, keep operating the last part of 180 degrees after changing handling form. After coagulation, coagulate the cut part widely by a 0.6mm handed semi-ball electrode. This is the purpose of necrosis after coagulation for the worry some where the lesion remains.

Operation progress



- Different from laser treatment, radio frequency coagulation replaces the colular epithelium with squamous epithelium completely in 4-6 weeks, also shown clearly in the colposcopy. Only small bleeding, but no massive one, may occur in the course of healing.

Electrodes

- E01**  Ø6 Bended semi-ball. Coagulation to 5mm depth
- E02**  Ø6 Straight semi-ball. Coagulation to 5mm depth
- E03**  Ø4 Straight semi-ball. Coagulation to 3mm depth
- E04**  Ø3 Straight ball. Coagulation to 2mm depth, rapid superficial coagulation
- E06**  Spine, Micro Coagulation
- E07**  Blade(Curved), Hemostatic cutting and surface coagulation
- E09**  Blade(Straight), Hemostatic cutting and surface coagulation
- F04**  W 15mm x L 25mm (Conization)
- G03**  Fine Ø25 Loop (Round LETTZ)
- J03**  Ø0.3 Tungsten wire L15 Needle (cutting)
- K02**  Super Fine Ø6 Loop(Resection)
- K04**  Fine Ø10 Loop(Resection)

Nevus and freckle removal


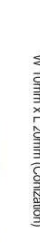









- Vaporize by using needle electrode after setting timer for continuous and output power 3 ~ 9. It hardly leaves a scar since the surrounding tissues are not damaged.

Applicable electrodes : E06, J03

- L02**  Super Fine L6 Diamond (Resection)
- N02**  Super Fine L5 Oval Loop (Resection)
- O01**  Super Fine L4 Square Loop (Resection)

Electrodes *Optima*

- F01**  W 10mm x L 20mm (Conization)
- F02**  W 10mm x L 25mm (Conization)
- F03**  W 15mm x L 10mm (Conization)
- F05**  W 17mm x L 17mm (Conization)
- G01**  Fine Ø15 Loop (Round LETTZ)
- G02**  Fine Ø20 Loop (Round LETTZ)
- I18**  Bipolar Cord
- I09**  Bipolar Cord Adaptor
- S02**  Cord for connecting endoscopic electrode

Surgery (GS, OS, NS)

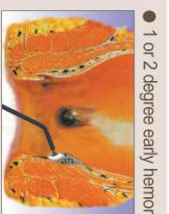
Wart, com, condyoma and polyp removal



Applicable electrodes : K, L, N, O electrodes

- Resect by using loop electrode or diamond electrode after setting timer continuous and output power 4 ~ 6.

Operation of hemorrhoids (internal, external hemorrhoids)



- 1 or 2 degree early hemorrhoids : Radio frequency coagulation without resection
- For early hemorrhoids, coagulate mucosa after setting the timer for 1 sec and output power 7 ~ 9.

Applicable electrodes : E03b, E04b



- 2 or 3 degree early hemorrhoids : Inside coagulation of mucosa by insulated bipolar electrodes
- Coagulate around hemorrhoidal plexus to reduce tissue volume without any damage to mucosa.

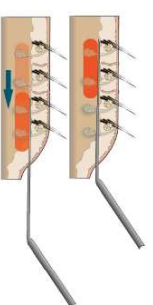
Applicable electrodes : T16 (insulated bipolar electrode for inside coagulation of hemorrhoids)



- 3 or 4 degree hemorrhoids, strangulated hemorrhoids, mixed hemorrhoids and anal prolapse
- Operation by various electrodes for incision, hemostasis and excision of hemorrhoidal piles.

Applicable electrodes : E07, E09, J03, K02, K04

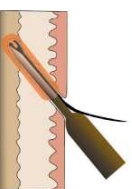
Osmidrosis axillae operation (Apocrine gland coagulation)



- Monopolar • Timer : 1 second • Output power : 8-9

Applicable electrodes : C10 (insulated coagulation electrode (end cut fully))




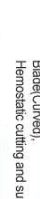






Hair root removal (Permanent removal)














- Monopolar • Timer : 1/4 ~ 1/8 second • Output power : 4 ~ 5
- It does not leave a scar since only hair root is coagulated without damage to skin.

Applicable electrodes : Hair root removal electrodes

Electrodes

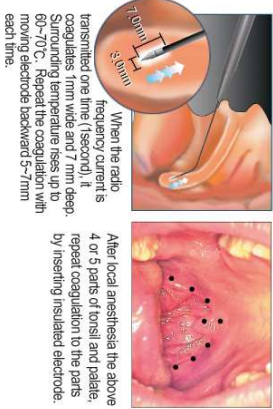
- E04b**  Ø3 Bended ball(L90). Coagulation to 2mm depth, rapid superficial coagulation
- E06**  Spine, Micro coagulation
- E07**  Blade(Curved), Hemostatic cutting and surface coagulation
- E09**  Blade(Straight), Hemostatic cutting and surface coagulation
- J03**  Regular L15 Needle
- J04**  Regular L15 Round Needle
- K01**  Super Fine Ø4 Loop(Resection)
- K02**  Super fine Ø6 Loop(Resection)
- K04**  Fine Ø10 Loop(Resection)
- L02**  Super Fine L6 Diamond(Resection)

Electrodes *Optima*

- BS2510**  Ø0.15 wire(Hair root removal)
- BSS312**  Ø0.15 wire(Hair root removal)
- BSS025**  Ø0.15 wire(Hair root removal)
- BL4015**  Ø0.18 wire(Hair root removal)
- BL4515**  Ø0.18 wire(Hair root removal)
- BL5025**  Ø0.18 wire(Hair root removal)
- I18**  Bipolar Cord
- I09**  Bipolar Cord Adaptor
- S02**  Cord for connecting endoscopic electrode
- T01**  Bipolar cord (For "T" series)
- T16**  Ø1.3 Insulated bipolar electrode for screwing treatment (soft pallade ablation) and hemorrhoid

Inside coagulation of palate mucosa (Snoring)

- Bipolar • Timer : 1 second • Output power : 7



Operation procedure



- Otitis media
- Bell's palsy
- Heavy snoring
- Tinnitus hearing

Applicable electrodes : T16

Inside coagulation of inferior turbinate mucosa (Chronic hypertrophic rhinitis)

- Bipolar • Timer : 1 second • Output power : 7

Operation procedure



- Otitis hearing
- Nasal sound
- Olfactory concentration
- Headache

Applicable electrodes : T17

Electrodes

Optima



I18 Bipolar Cord



I09 Bipolar Cord Adaptor

Radio frequency perforation and drainage for exudative otitis media

- Monopolar • Timer : 1/4 second • Output power : 6-7



Applicable electrodes : J10

Electrodes



E04a ϕ 3 Straight ball(L30). Coagulation to 2mm depth.

E04b ϕ 3 Bended ball(L30). Coagulation to 2mm depth, rapid superficial coagulation

E05a ϕ 2 Bended Ball(L30) Ephraim's hemostasis

E09 Blade (Straight), Hemostatic cutting and surface coagulation

J03 ϕ 0.3 tungsten wire L15 Needle (Cutting)

J04 Regular L15 round Needle (Cutting)

J10 ϕ 0.5 Stainless steel bended electrode (Ear drum perforation electrode for exudative otitis media)

K02 Super Fine ϕ 6 Loop (Resection)

K04 Fine ϕ 10 Loop (Resection)

N04 Fine U8 Oval Loop (Resection)



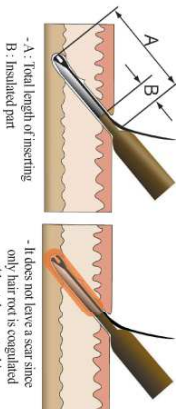
T01 Bipolar cord (For T series)

T16 ϕ 1.3 Insulated bipolar electrode for snoring treatment (soft palate ablation) and hemorrhoid

T17 ϕ 1.3 Insulated electrode for tissue ablation of turbinate mucosa (for hypertrophic rhinitis)

Hair root removal (Permanent removal)

- After setting the unique timer function of Dr. Oettel 1/4-1/8 second, and output power 4-5, repeat treatment.



- A : Total length of inserting
B : Insulated part

- It does not leave a scar since only hair root is coagulated without damaging to skin.

Applicable electrodes : Hair removal electrodes

ITEM NO	Shape	Color	Length of A/length of B	External diameter of needle
BS2510	—	White	2.5mm 1.0mm	ϕ 0.15 wire
BS3512	—	Black	3.5mm 1.2mm	ϕ 0.15 wire
BS5025	—	Red	5.0mm 2.5mm	ϕ 0.15 wire
BL4015	—	Yellow	4.0mm 1.5mm	ϕ 0.18 wire
BL4515	—	Blue	4.5mm 1.5mm	ϕ 0.18 wire
BL5025	—	Green	5.0mm 2.5mm	ϕ 0.18 wire

Nevus and freckle removal

- Vaporize by using needle electrode after setting timer for continuous and output power 7-9. It hardly leaves a scar since the surrounding tissues are not damaged.

Applicable electrodes : E05, J03

Electrodes

C10 ϕ 1.0 Insulated coagulation electrode (end cutably) for compress analise

E04 ϕ 3 Straight ball(Hemostatic coagulation)

E05 ϕ 2 Straight ball(Hemostatic coagulation)

E06 Super(Micro coagulation)

E09 Blade (Straight), Hemostatic cutting and surface coagulation

E10b Hemostatic cutting electrode for deepthaplasty (15mm)

J03 Regular L15 Needle(Incision, Vaporization)

J06 Super fine L5 Bended Needle

J11 Micro cutting (2mm)

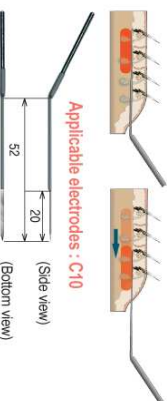
J12 Micro cutting (3mm)

K01 Super fine ϕ 4 Loop

K02 Super fine ϕ 6 Loop

Osmidrosis axillae operation (Apoocrine gland coagulation)

- After setting the unique timer function of Dr. Oettel for 1 second and output power 8-9, repeat coagulation to the target area in order.



Applicable electrodes : C10

(Side view)
52
20
(Bottom view)

Wart, com, condyloima and polyps removal



- Resect by using loop electrode or diamond electrode after setting timer for continuous and output power 4.

Circumcision

- Various types of posthatory can be fulfilled with the various kinds of electrodes excellent in pure cutting and coagulation.

Electrodes

Optima

BS2510 ϕ 0.15 wire(Hair root removal)

BS3512 ϕ 0.15 wire(Hair root removal)

BS5025 ϕ 0.15 wire(Hair root removal)

BL4015 ϕ 0.18 wire(Hair root removal)

BL4515 ϕ 0.18 wire(Hair root removal)

BL5025 ϕ 0.18 wire(Hair root removal)

E10a Hemostatic cutting electrode for deepthaplasty (10mm)

E10c Hemostatic cutting electrode for deepthaplasty (20mm)



I18 Bipolar cord



I09 Bipolar Cord Adaptor

Instruction Guide

Operation	Electrode	Monopolar • Bipolar (frequency)	Operation time (frequency)	Timer Setting	Output control
Electrode coagulation	E01, E02	Monopolar	3-4min	Continuous	10
Curettion	F01~F05	Monopolar	10~20sec	Continuous	10
LLETZ	G-H series	Monopolar	10~20sec	Continuous	10
Bipolar coagulation	Bipolar Forceps	Bipolar	1~2sec	Continuous	8~10
Cutting resection	Needle Loop	Monopolar	-	Continuous	10
Coagulation	Ø3mm Ball	Monopolar	-	Continuous	10
	Ø2mm Ball	Monopolar	-	Continuous	7-8
	Ø2mm Ball	Monopolar	-	Continuous	6-7
Hemostatic Cutting	Special Blade	Monopolar	-	Continuous	10

Operation	Electrode	Monopolar • Bipolar (frequency)	Operation time (frequency)	Timer Setting	Output control
Suturing	T16	Bipolar	5-6	1 sec	7
Ureth/hydroprosthesis	T17	Bipolar	5-6	1 sec	7
Excisional cells incision	J10	Monopolar	3-4	1.5sec	6-7
Cutting	Needle Type	Monopolar	3-4	Continuous	8~10
Coagulation	Ø2mm Ball	Monopolar	-	Continuous	6-7
	Ø3mm Ball	Monopolar	-	Continuous	7-8
Hemostatic cutting	Blade	Monopolar	-	Continuous	10
poly/p	K02	Monopolar	-	Continuous	7-8
Suturing	K04	Monopolar	-	Continuous	10

Operation	Electrode	Monopolar • Bipolar (frequency)	Operation time (frequency)	Timer Setting	Output control
Har root removal	BS Type	Monopolar	Continuous	1/4 or 1/8 sec	4-5
Dermoidosis excise	C10	Monopolar	Continuous	1sec	8-9
Mossus and	J01, J02	Monopolar	Continuous	Continuous	7-8
freckle removal	J03	Monopolar	Continuous	Continuous	8-9
Wart, corn	K01, K02, L02	Monopolar	-	Continuous	4
condyloma polyps	K03	Monopolar	-	Continuous	5
Hemostatic	Ø2mm ball	Monopolar	-	Continuous	6-7
coagulation	Ø3mm ball	Monopolar	-	Continuous	7-8
	Ø3mm ball	Monopolar	-	Continuous	7-8
Incision	J01, J02	Monopolar	-	Continuous	6-7
	Ø3mm ball	Monopolar	-	Continuous	7-8
Hemostatic cutting	J03, J06	Monopolar	-	Continuous	8-10
	E08	Monopolar	-	Continuous	10
Ophthalmopexy	J11, J12	Monopolar	-	Continuous	6-8
Coarcted electrode	BS Bl. Type	Monopolar	-	Continuous	7-8
Pyngle	BS Bl. Type	Monopolar	-	1sec	3-4
Capillary vessel	BS Bl. Type	Monopolar	-	1/2sec	3-4

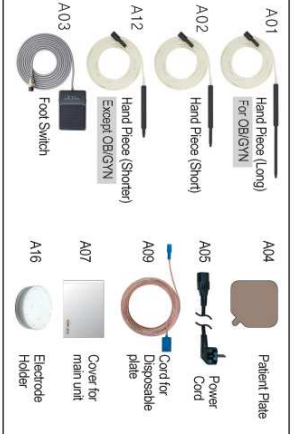
Operation	Electrode	Monopolar • Bipolar (frequency)	Operation time (frequency)	Timer Setting	Output control
Bipolar Coagulator	Bipolar Type	Bipolar	1-2	Continuous	5-7
Cutting	Needle Type	Monopolar	-	Continuous	7-10
Coagulation	Ball Type	Monopolar	-	Continuous	7-10
Hemostatic Cutting	Blade	Monopolar	-	Continuous	10
1 or 2 degree early hemorrhoids	E03b	Monopolar	1-3	1sec	8-9
2 or 3 degree early hemorrhoids	T16	Bipolar	2-3	1sec	7-8
Har root removal	BS Bl. Type	Monopolar	-	1/2sec	4-5
Hemostatic	C10	Monopolar	-	1sec	10
Mossus and	J02	Monopolar	3-5	Continuous	4
freckle removal	J03	Monopolar	3-5	Continuous	5
Wart, corn, condyloma polyps	K02, L02	Monopolar	2-3	Continuous	7-8
Hemostatic coagulation	N01, O02	Monopolar	2-3	Continuous	7-8
Incision	E03a, E03b	Monopolar	-	Continuous	8-9
	J02, J03	Monopolar	-	Continuous	7~10
Hemostatic cutting	E07~E09	Monopolar	-	Continuous	10

! Dr.oppel (ST-501) should be used only by well trained doctors. Prior to metal operations, doctors should be fully aware of the operation methods and conditions that are described in the manual. Please refer to the manual for details.
 • The use of the product, timer setting or operation time for each symptom described above are standard instruction but may not be fully applicable to all patients in the same way. Therefore, operations are requested to do manual adjustments according to each symptom and case.

Specification

MODEL NAME	Dr.oppel ST-501
OUTPUT POWER	MONOPOLAR : 125W (Max 100 ±20%) BIPOLAR : 50W (Max 50 ±20%)
FREQUENCY	4MHz
INPUT VOLTAGE	100 / 110 / 120 / 220 / 230 / 240 VAC, 50 / 60Hz
(Customer - Made)	
TIME SELECTION	Continuous, 1sec, 1/2sec, 1/8sec, 1/8sec
POWER CONSUMPTION	450 VA + 10% under on maximum load
WEIGHT	10 kg
DIMENSION	Main Unit : 225(W) X 300(L) X 155(H)mm

Standard Accessories



* This specification is changeable without notice for product improvement.



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RADIO FREQUENCY ELECTROSURGICAL DEVICE



Dr.oppel[®] RF
ST-501

OB • GYN
Surgery (GS, OS, NS)
ENT
Dermatology • Plastic Surgery • Urology

