

### IMPORTANT INFORMATION

This quick guide is a brief summary of the most important working steps and information. It does not replace the instructions for use. For more detailed information, please read the instructions for use of the ARC 400 generator carefully.

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## 1.1 | AREAS OF APPLICATION OF HF SURGERY

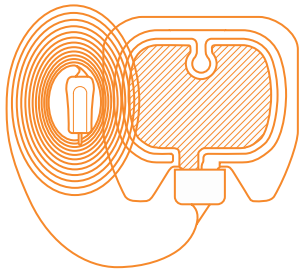


HF surgery employs alternating currents with a frequency of at least 200 kHz, with the thermal effect dominating. HF surgery can be utilised to coagulate and dissect tissue.

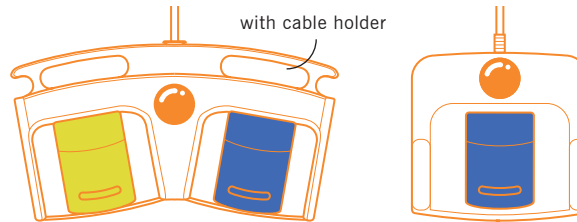
### Areas of application:

- General surgery
- Gastroenterology
- Gynaecology
- Hand surgery
- ENT
- Cardiac surgery (including open heart surgery)
- Neurosurgery
- Paediatric surgery
- Plastic surgery/dermatology
- Thoracic surgery
- Orthopaedics
- Urology, including transurethral resection (TUR)

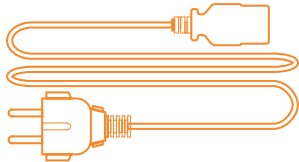
## 1.2 | REQUIRED FOR OPERATION



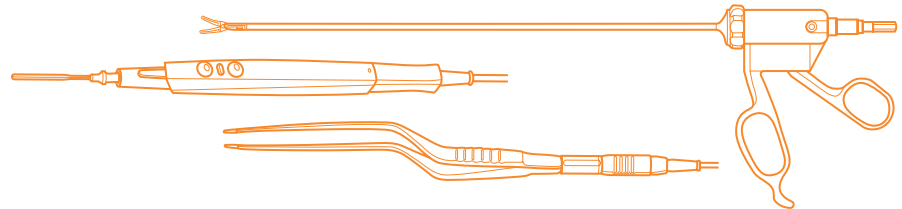
**Neutral electrode**  
for monopolar applications



**Foot switch**



**Mains cable**



**Instruments (monopolar and bipolar)**  
+ connecting cable

## 2.1 | FRONT OF THE GENERATOR

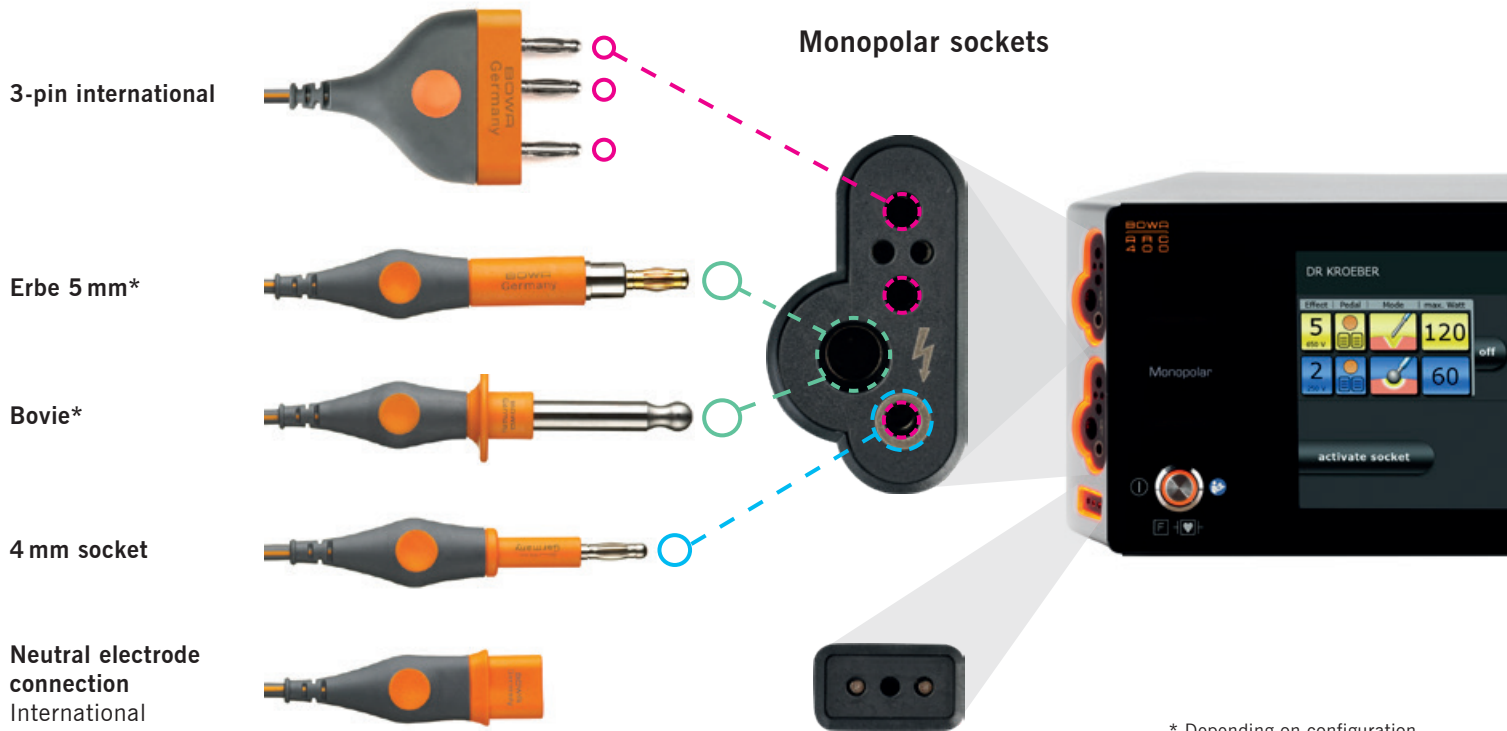
- 1 On/off button
- 2 Touchscreen
- 3 Monopolar sockets
- 4 Neutral electrode connection



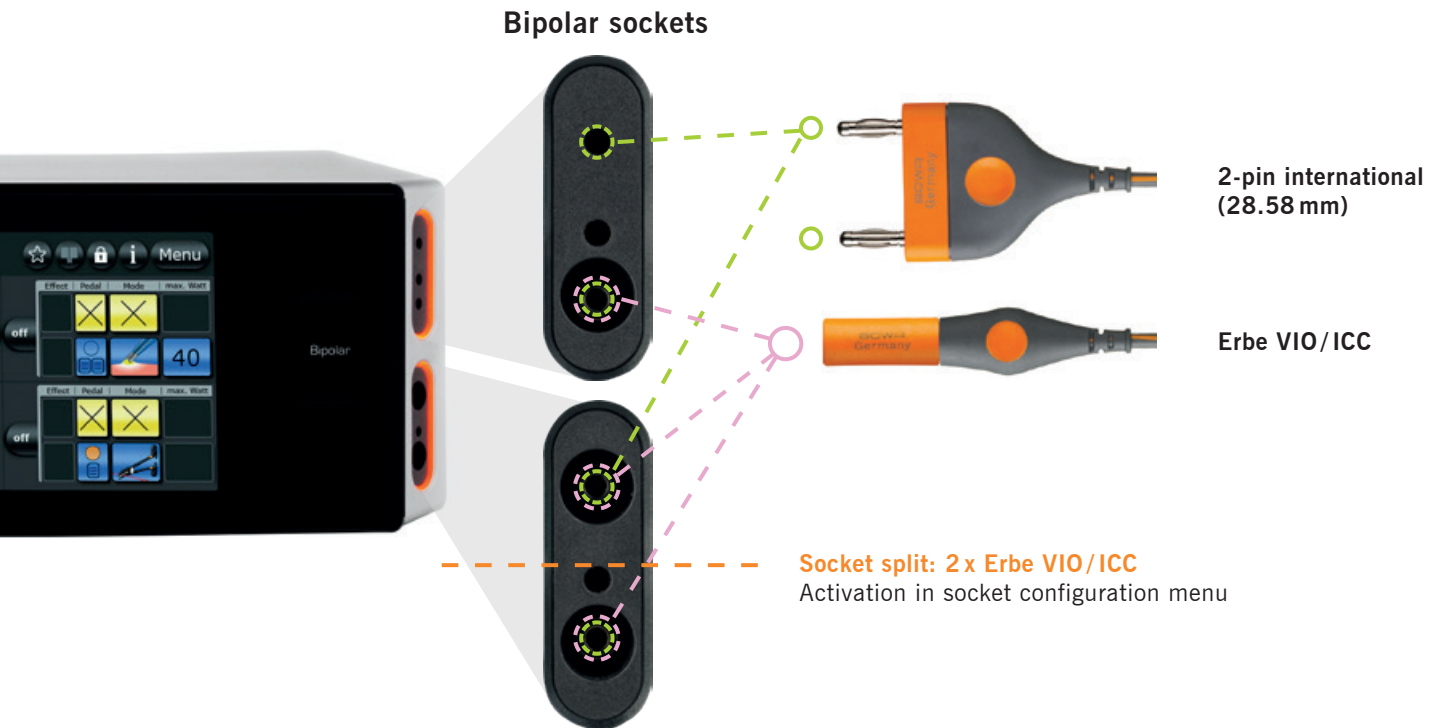


- 
- 5 Status bar
  - 6 Bipolar sockets
-

## 2.2 | CONNECTION SOCKETS FOR INSTRUMENTS







## 2.3 | BACK OF THE GENERATOR



- 1 Connection socket 1 for foot switch
- 2 Connection socket 2 for foot switch
- 3 Connection for equipotential bonding
- 4 Mains power supply
- 5 Fibre optic cable signal input socket
- 6 Fibre optic cable signal output socket
- 7 Ethernet connection
- 8 Mains power switch

**The following connections should only be used by service technicians and for training:**

- 9 USB port
- 10 Not assigned
- 11 UART communication interface

## 3.1 | SWITCHING ON THE DEVICE

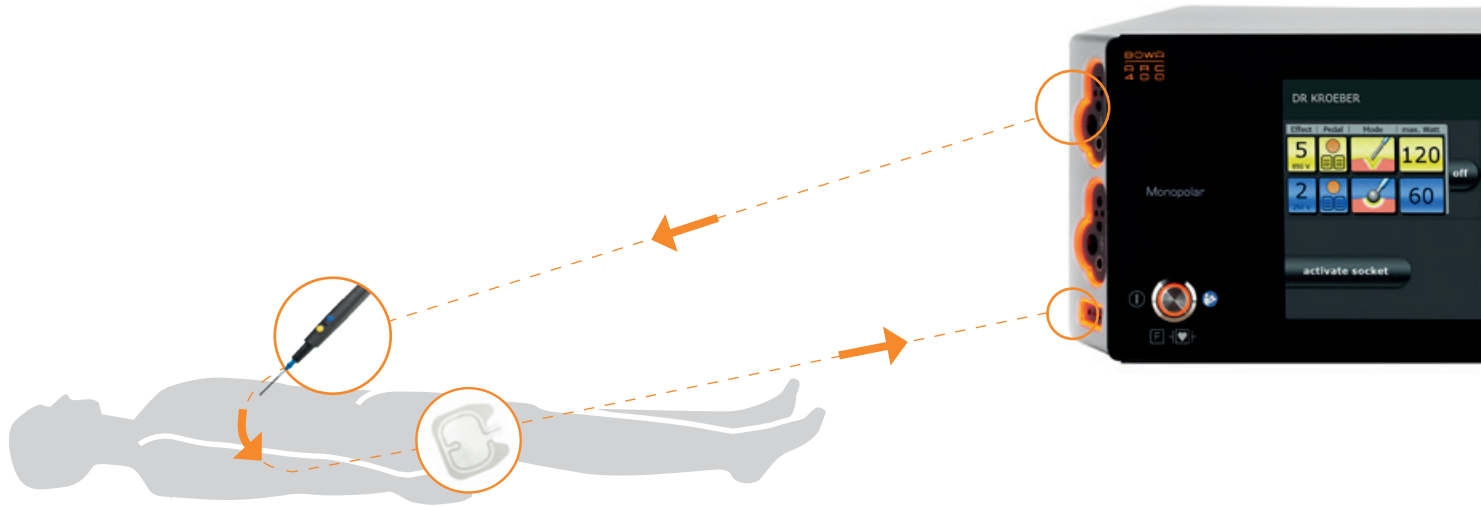


### Switching on the HF device:

1. Mains power switch on the back of the device
2. On/off button on the front panel

The HF device runs a self test.  
The main display screen appears.  
The ARC 400 is ready for operation.  
The parameters of the last saved program are shown on the display.

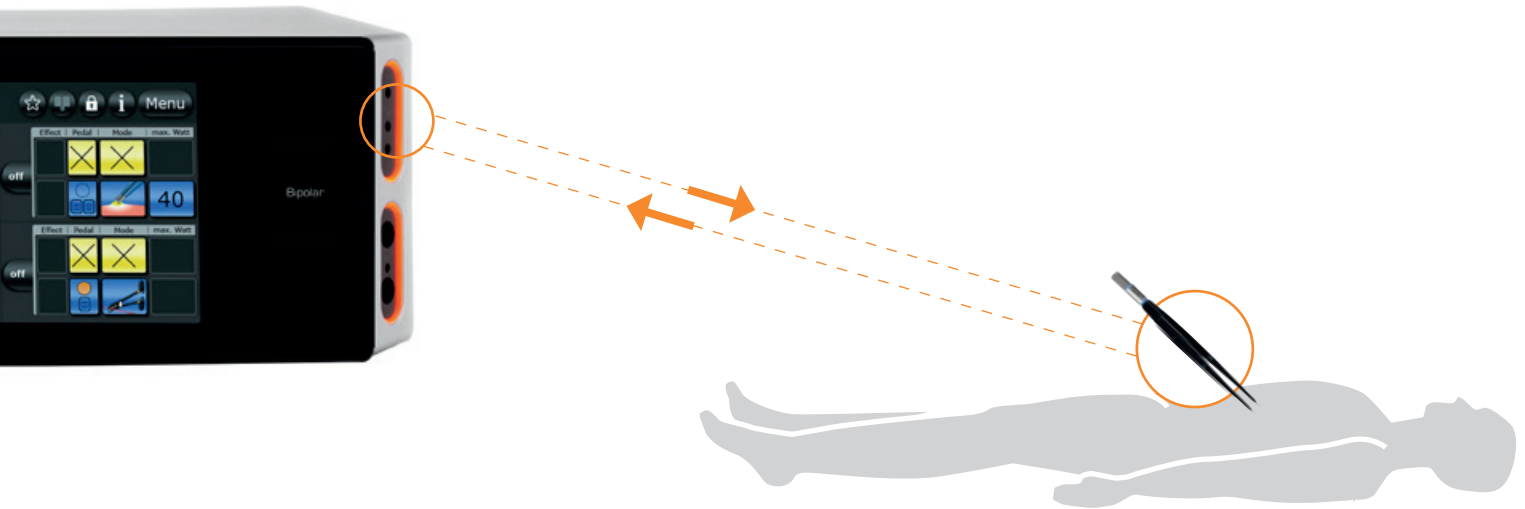
## 3.2 | MONOPOLAR APPLICATION



### Monopolar:

- Insert the neutral electrode cable in the corresponding socket.
- Connect the electrode handpiece up to one of the two monopolar sockets.
- The foot switch must be connected when instruments without a finger switch are used.

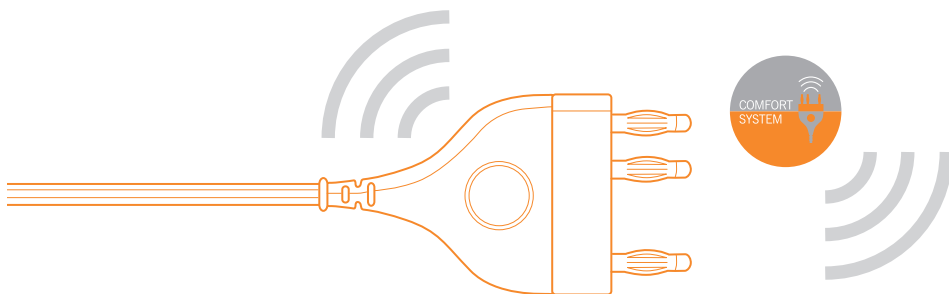
## 3.3 | BIPOLAR APPLICATION



### **Bipolar:**

- Insert instruments with a bipolar connecting cable into one of the two bipolar sockets.
- Connect the foot switch.

## 3.4 | PLUG & CUT COMFORT



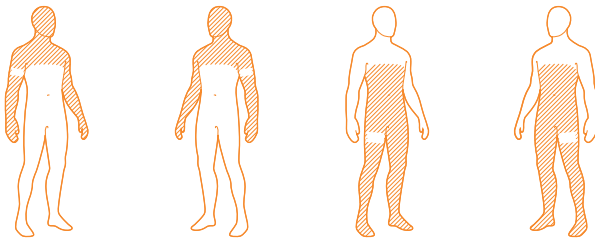
### Insert the COMFORT instrument into one of the sockets on the ARC 400.

- The instrument's data are read
- A description of the instrument appears:
  - Instrument name
  - Recognised socket
  - Item number
  - Lot number
  - Remaining number of uses of instruments which can be reprocessed. The remaining number of uses is not shown for single-use instruments.
- BOWA COMFORT instruments are available in monopolar and bipolar versions.

### BOWA COMFORT function is available for:

- BOWA COMFORT instruments **with** adjustable parameters. Preset values are available and can be individually adjusted.
- BOWA COMFORT instruments **without** adjustable parameters, e.g., vessel sealing instruments. The ideal setting for the instrument is loaded and cannot be adjusted.

## 3.5 | SELECTING THE NEUTRAL ELECTRODE



### Neutral electrode application

Select the application site for the neutral electrode in such a way that the current paths between the active and neutral electrodes are as short as possible and run lengthways or diagonal to the body (as muscles boast higher conductivity in the direction of the fibrils).

- EASY: For monitoring of split neutral electrodes
- BABY: For monitoring of split paediatric electrodes
- MONO: For selection of one-piece electrodes



Split neutral electrode



Split Baby neutral electrode



One-piece neutral electrode

### Display of contact quality



OK



Not optimal



Insufficient



Not connected

## 4.1 | OPERATION

---

### 1 On/off button

### 2 Effect

The effect of the electro-surgical dissection or coagulation can be set using the "Effect" button.

### 3 Foot switch

The foot switch can be assigned using the "Pedal" button.

### 4 Mode

The "Mode" button is used to select the desired form of current.

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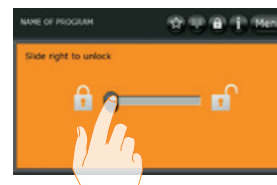
## 5 Favourites

Used to save custom settings

## 6 EASY neutral electrodes

Selection of neutral electrode used.  
Information about patient contact.

## 7 Automatic key lock



## 8 Information

9 The basic settings can be adjusted in the **menu**.

10 The **activation bar** lights up yellow or blue as soon as an instrument is activated in the respective socket.

11 The **socket light** goes out when a connector is fully inserted and flashes if settings are changed.

## 4.2 | SWITCHING SOCKETS ON AND OFF



### Deactivated socket

To activate sockets which are deactivated, insert a connecting cable **or** press the "activate socket" button.

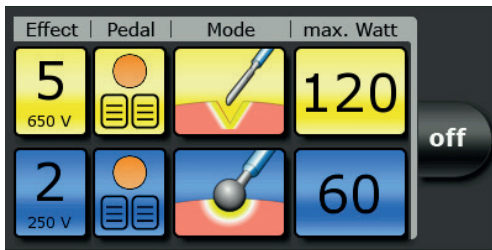
- An overview of the socket settings appears.



### Unused socket

If there is no instrument connected to the socket, it is shown in grey.

- To hide the sockets, press the "off" button next to the socket settings overview.

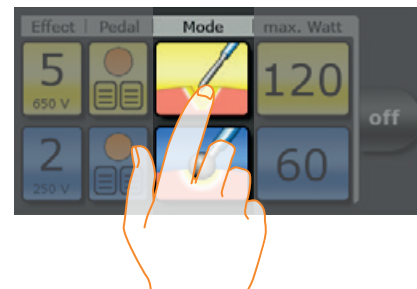


### Activated socket

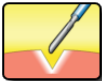
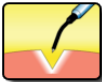

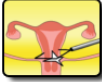
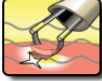
If an instrument is inserted, the socket light goes out and the socket's selection field lights up. If an instrument is inserted, the socket cannot be hidden.

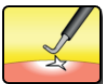
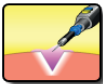
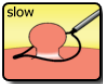
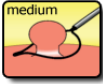
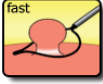
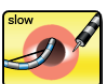
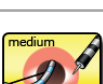
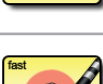
## 4.3 | SELECTING THE MODE

- The mode is selected by pressing the icon.
- The available modes appear.
- Confirm your selection by pressing "OK".

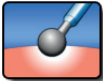
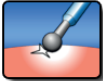

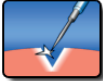
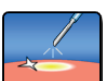




### Monopolar cutting modes

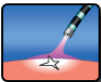
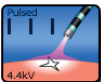
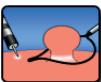


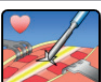

MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Standard	<ul style="list-style-type: none"> <li>- Cutting with low electrical tissue resistance</li> <li>- Cutting or preparation of fine structures</li> </ul>	<ul style="list-style-type: none"> <li>- Needle electrodes</li> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> <li>- Sling electrodes</li> </ul>
	Micro	<ul style="list-style-type: none"> <li>- Paediatric surgery</li> <li>- Neurosurgery</li> <li>- Plastic surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Micro needle electrodes</li> </ul>
	Dry	<ul style="list-style-type: none"> <li>- Cardiac surgery</li> <li>- Haemostasis of receding blood vessels in the area of the sternum</li> </ul>	<ul style="list-style-type: none"> <li>- Knife electrodes</li> </ul>
	MetraLOOP	<ul style="list-style-type: none"> <li>- Gynaecology</li> <li>- Laparoscopic removal of uterus</li> </ul>	<ul style="list-style-type: none"> <li>- Gynaecological slings</li> </ul>
	Resection	<ul style="list-style-type: none"> <li>- Hysteroscopy</li> <li>- Transurethral resection of the prostate (TURP)</li> <li>- Surgical treatment of bladder tumours (TURB)</li> <li>- Vaporisation of prostate tissue (TUR-VAP)</li> </ul>	<ul style="list-style-type: none"> <li>- Resectoscope (monopolar)</li> <li>- Resection sling</li> <li>- Rollerblade electrode</li> </ul>

MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Laparoscopy	<ul style="list-style-type: none"> <li>- Laparoscopy</li> <li>- Arthroscopy</li> </ul>	<ul style="list-style-type: none"> <li>- Arthroscopy electrodes</li> <li>- Laparoscopy electrodes</li> </ul>
	Argon*	<ul style="list-style-type: none"> <li>- Visceral surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Rigid argon electrodes</li> <li>- Argon handle</li> </ul>
	GastroLOOP 1	<ul style="list-style-type: none"> <li>- Polyp removal using polypectomy snares and flexible endoscopy</li> </ul>	<ul style="list-style-type: none"> <li>- Polypectomy snares</li> </ul>
	GastroLOOP 2	<ul style="list-style-type: none"> <li>- Polyp removal using polypectomy snares and flexible endoscopy, with accelerated pulse rate for experienced users</li> </ul>	<ul style="list-style-type: none"> <li>- Polypectomy snares</li> </ul>
	GastroLOOP 3	<ul style="list-style-type: none"> <li>- Polyp removal using polypectomy snares and flexible endoscopy, with accelerated fast pulse rate for advanced users</li> </ul>	<ul style="list-style-type: none"> <li>- Polypectomy snares</li> </ul>
	GastroKNIFE 1	<ul style="list-style-type: none"> <li>- Papilla incision using a papillotome and flexible endoscopy</li> <li>- Resection with needle knives</li> <li>- Slow pulse rate for cautious work</li> </ul>	<ul style="list-style-type: none"> <li>- Papillotomes</li> <li>- Needle knives</li> </ul>
	GastroKNIFE 2	<ul style="list-style-type: none"> <li>- Papilla incision using a papillotome and flexible endoscopy</li> <li>- Resection with needle knives</li> <li>- Accelerated pulse rate for experienced users</li> </ul>	<ul style="list-style-type: none"> <li>- Papillotomes</li> <li>- Needle knives</li> </ul>
	GastroKNIFE 3	<ul style="list-style-type: none"> <li>- Papilla incision using a papillotome and flexible endoscopy</li> <li>- Resection with needle knives</li> <li>- Accelerated fast pulse rate for advanced users</li> </ul>	<ul style="list-style-type: none"> <li>- Papillotomes</li> <li>- Needle knives</li> </ul>

## Monopolar coagulation modes





MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Moderate	<ul style="list-style-type: none"> <li>- Coagulation with high penetration depth</li> <li>- Lower adhesion of tissue to electrode</li> </ul>	<ul style="list-style-type: none"> <li>- Electrodes with large contact area, e.g., ball electrodes</li> </ul>
	Forced non cutting	<ul style="list-style-type: none"> <li>- Fast coagulation with small penetration depth</li> </ul>	<ul style="list-style-type: none"> <li>- Ball electrodes</li> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> </ul>
	Forced mixed	<ul style="list-style-type: none"> <li>- Fast coagulation with small penetration depth and moderate cutting tendency</li> </ul>	<ul style="list-style-type: none"> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> <li>- Insulated monopolar forceps</li> </ul>
	Forced cutting	<ul style="list-style-type: none"> <li>- Fast coagulation with small penetration depth and very good cutting tendency</li> </ul>	<ul style="list-style-type: none"> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> <li>- Needle electrodes</li> </ul>
	Spray	<ul style="list-style-type: none"> <li>- Coagulation of diffuse bleeding</li> </ul>	<ul style="list-style-type: none"> <li>- Ball electrodes</li> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> <li>- Needle electrodes</li> </ul>
	Laparoscopy	<ul style="list-style-type: none"> <li>- Laparoscopy</li> <li>- Arthroscopy</li> </ul>	<ul style="list-style-type: none"> <li>- Arthroscopy electrodes</li> <li>- Laparoscopy electrodes</li> </ul>
	Argon*	<ul style="list-style-type: none"> <li>- Visceral surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Rigid argon electrodes</li> <li>- Argon handle</li> </ul>

\* These modes are to be used in combination with the argon additional device ARC PLUS (900-001).

MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Argon flexible*	<ul style="list-style-type: none"> <li>- Gastroenterology</li> <li>- Homogeneous surface coagulation</li> </ul>	<ul style="list-style-type: none"> <li>- Flexible argon probes</li> </ul>
	Argon flex. Pulse*	<ul style="list-style-type: none"> <li>- Gastroenterology</li> <li>- Homogeneous surface coagulation</li> </ul>	<ul style="list-style-type: none"> <li>- Flexible argon probes</li> </ul>
	Gastro Coag	<ul style="list-style-type: none"> <li>- Following bleeding in combination with polypectomies</li> <li>- Papillotomies</li> </ul>	<ul style="list-style-type: none"> <li>- Polypectomy snares</li> <li>- Papillotomes</li> </ul>
	Resection	<ul style="list-style-type: none"> <li>- Hysteroscopy</li> <li>- Transurethral resection of the prostate (TURP)</li> <li>- Surgical treatment of bladder tumours (TURB)</li> <li>- Vaporisation of prostate tissue (TUR-VAP)</li> </ul>	<ul style="list-style-type: none"> <li>- Resectoscope (monopolar)</li> <li>- Resection sling</li> <li>- Rollerblade electrode</li> </ul>
	Cardiac Mammary	<ul style="list-style-type: none"> <li>- Mammary surgery</li> <li>- Cardiac surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Knife electrodes</li> </ul>
	Cardiac Thorax	<ul style="list-style-type: none"> <li>- Thoracic surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Knife electrodes</li> </ul>
	SimCoag	<ul style="list-style-type: none"> <li>- Simultaneous coagulation and dissection, e.g., cardiac and mammary surgery</li> </ul>	<ul style="list-style-type: none"> <li>- Ball electrodes</li> <li>- Knife electrodes</li> <li>- Spatula electrodes</li> </ul>

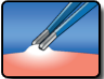
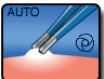
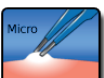




\* These modes are to be used in combination with the argon additional device ARC PLUS (900-001).

## Bipolar cutting modes



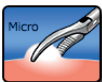

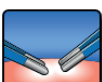
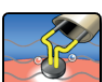
MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Standard	- Laparoscopic cutting	- Laparoscopic instruments
	Bipolar resection <sup>R</sup>	- Hysteroscopy - Transurethral resection of the prostate (TURP) - Surgical treatment of bladder tumours (TURB) - Vaporisation of prostate tissue (TUR-VAP)	- Resectoscope (bipolar) - Resection sling
	Bipolar scissors	- Dissection - Coagulation and cutting of tissue	- Bipolar scissors
	Vaporisation <sup>R</sup>	- Hysteroscopy - Transurethral resection of the prostate (TURP) - Surgical treatment of bladder tumours (TURB) - Vaporisation of prostate tissue (TUR-VAP)	- Resectoscope (bipolar) - Vaporisation electrode

<sup>R</sup> These modes are available with the bipolar resection option (900-395).

## Bipolar coagulation modes

MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Standard forceps	- Bipolar coagulation	- Bipolar forceps
	Standard forceps AUTO	- Bipolar coagulation with AUTOSTART	- Bipolar forceps
	Micro forceps	- Bipolar coagulation, e.g., paediatric surgery, neurosurgery, plastic surgery	- Bipolar forceps - Micro forceps
	Forced forceps	- Rapid bipolar coagulation	- Bipolar forceps
	LIGATION <sup>L</sup>	- Vessel sealing, open and laparoscopic	- TissueSeal <sup>®</sup> PLUS - NightKNIFE <sup>®</sup> - LIGATOR <sup>®</sup> - ERGO 310D - ERGO 315R
	ARCSeal <sup>L</sup>	- Vessel sealing, open and laparoscopic	- ERGO 310D - ERGO 315R
	TissueSeal PLUS <sup>L</sup>	- Vessel sealing, open	- TissueSeal <sup>®</sup> PLUS



MODE	DESCRIPTION	APPLICATION	SUITABLE INSTRUMENT
	Bipolar scissors	- Dissection, coagulation and cutting of tissue	- Bipolar scissors
	Laparoscopy	- Laparoscopic coagulation	- Bipolar laparoscopic instruments
	Laparoscopy Micro	- Laparoscopic coagulation	- Fine bipolar laparoscopic instruments
	Bipolar resection <sup>R</sup>	- Hysteroscopy - Transurethral resection of the prostate (TURP) - Surgical treatment of bladder tumours (TURB) - Vaporisation of prostate tissue (TUR-VAP)	- Resectoscope - Resection sling - Rollerblade electrode
	SimCoag <sup>S</sup>	- Simultaneous coagulation and dissection with two bipolar instruments in general surgery, vascular surgery, plastic surgery, trauma surgery, neurosurgery and orthopaedics	- Bipolar forceps - Bipolar scissors
	Vaporisation <sup>R</sup>	- Hysteroscopy - Transurethral resection of the prostate (TURP) - Surgical treatment of bladder tumours (TURB) - Vaporisation of prostate tissue (TUR-VAP)	- Resectoscope - Rollerblade electrode - Vaporisation electrode

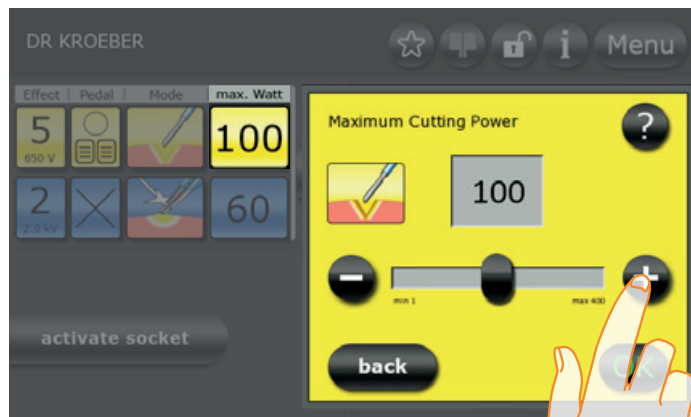
<sup>R</sup> These modes are available with the bipolar resection option (900-395).

<sup>L</sup> These modes are available with the LIGATION option (900-396).

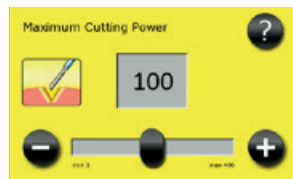
<sup>S</sup> This mode is available with the bipolar SimCoag option (900-399).

## 4.4 | SELECTING THE POWER LIMIT AND EFFECTS

### Gradual adjustment



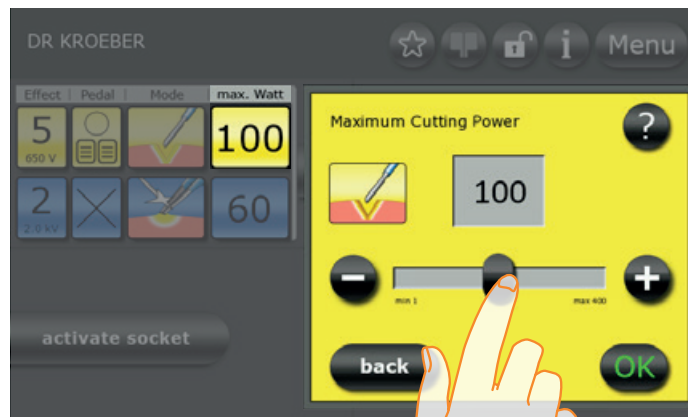
Cutting settings screen



Adjustment in single steps



### Rapid adjustment



Cutting settings screen



Adjustment in steps of 10



## 4.5 | ASSIGNING THE FOOT SWITCH



### Foot switch **ACTIVE**

Cutting and coagulation



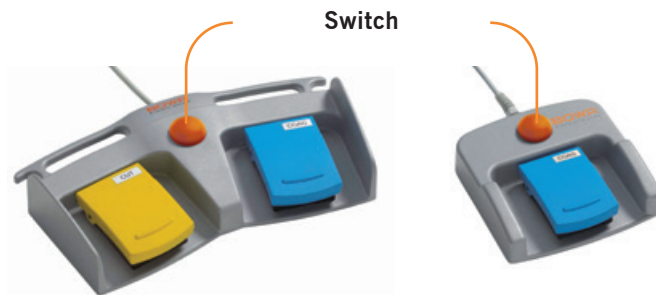
### Foot switch **DEACTIVATED**

No instrument assigned



### Foot switch **INACTIVE**

Changeover from active to inactive possible.



It is possible to connect a double foot switch and/or a single foot switch with a switch. The switch allows changing between the foot switch levels.

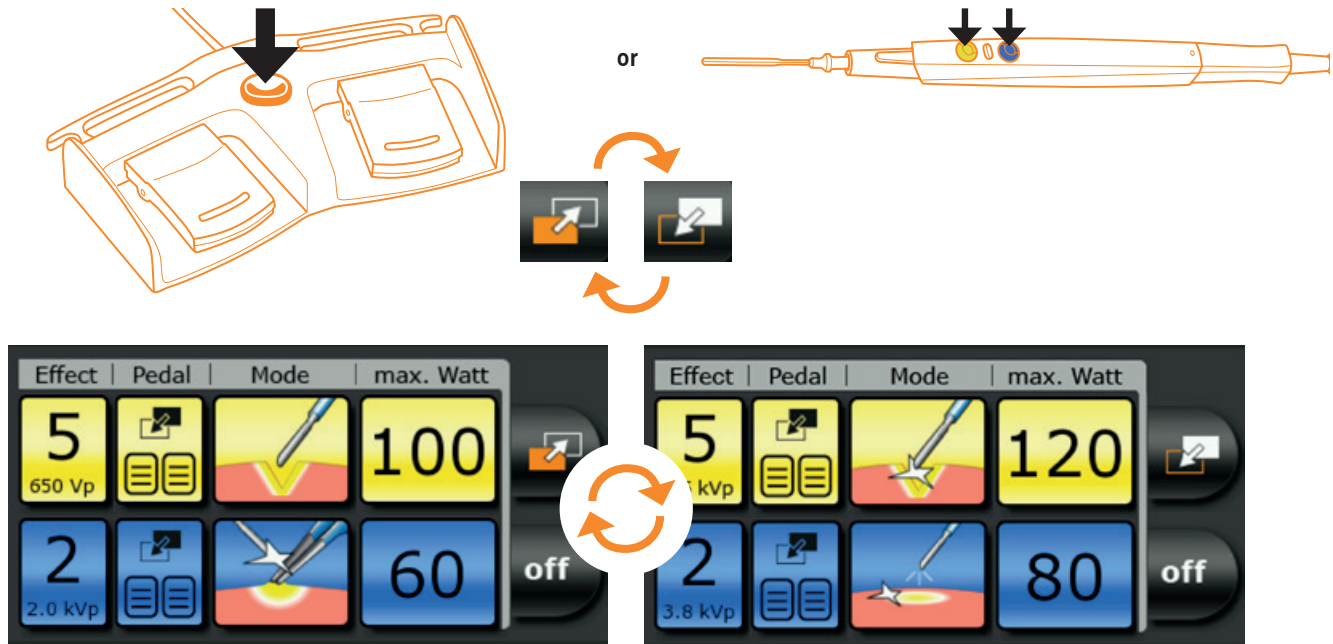
- Press the "Pedal" button.
- Select the desired foot switch by pressing the corresponding button.
- Confirm your selection with "OK".
- The foot switch can be used to change between the foot switch levels. Press the orange switch and change the socket.

The activation is visualised by the orange colouring.

The single foot switch can be handled in the same way.

## 4.6 | ZAP MODE

The ZAP mode can be used to select two independent socket settings for an instrument and switch between them in a sterile setting. This function can be activated separately for each socket in the socket configuration menu.



## 5 | DR. DONGLE®

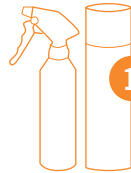
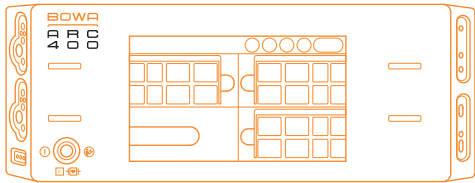


**Dr. Dongle** is a personalised memory stick on which up to six programs can be stored and reimported. Insert your **Dr. Dongle** with your customised personal settings into any bipolar socket on an ARC 400. As soon as it is inserted,

an overview of the saved programs opens as a new user interface.

As long as the **Dr. Dongle** is inserted, the favourites button takes you directly to the **Dr. Dongle** program list.

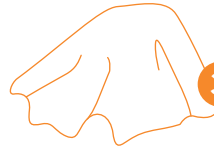
## 6 | DISINFECTION AND CLEANING



1 Cleaning agents and disinfectants



2 Wiping with a sponge or cloth moistened with clean water



3 Dry with a clean, lint-free cloth

**Never sterilise the ARC 400 HF device. Clean or disinfect it.**

**Risk of electric shock and fire!**

- Unplug the power connection before cleaning the device.
- For cleaning surfaces, use the approved cleaning agents/disinfectants only as specified by the manufacturer.
- Ensure that no liquid penetrates the device.
- Ensure that the AUTOSTART function is deactivated.

## 7 | TECHNICAL DATA

Overview of technical data	ARC 400
Mains voltage	100–127 V/220–240V
Mains frequency	50/60 Hz
Line current	Max. 5 A @ 230 V Max. 8 A @ 127 V Max. 10 A @ 100 V
Power fuse	2 x T 5 AH 250V @ 220–240 V 2 x T 10 AH 250V @ 100–127 V
Power input min.	3 W/40 VA
Power input max.	700 W/1150 VA
Width x height x depth	430 x 180 x 475 mm
Weight	12.5 kg
Classification according to EU Directive 93/42/EEC	II b
Protection class according to EN 60601-1	I
Type of applied part according to EN 60601-1	CF
CE mark as per EU Directive 93/42/EEC	CE0123
REF	900-400
Bipolar resection option	900-395
LIGATION option	900-396
Bipolar SimCOAG option	900-399
Max. MONOPOLAR power	400 W (at 200 Ω)
Max. BIPOLAR power	400 W (at 75 Ω)
Output frequency	350 kHz/1 MHz

# BOWA

A C A D E M Y

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