

Specificație Completată

Colposcop

Model: OP-C5; Producător: OPTOMIC; Tara: Germania.

Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către autoritatea ofertantă
<p>Colposcop Colposcopia este o metodă de diagnostic neinvazivă. Împreună cu examenul citocitologic și histologic colposcopia stă la baza diagnosticului precoce al cancerului de col uterin, permițând o decizie terapeutică în timp util și urmărirea fazelor tratamentului. Parametrul Specificația Tip halogen Putere $\geq 150W$ Timp de viață lampă $\geq 500h$ Suprafața rezistentă la prelucrarea chimică Axa de rotație ≥ 2</p> <p>Înălțime reglabil Lampă de rezervă ≥ 1 Unghi de rotație ≥ 300 grade</p> <p>Unghiul de iluminare reglabil</p> <p>Înălțimea față de podea min ≥ 500 pina la ≥ 1160 mm Mișcarea orizontală ≥ 950 mm Compatibil cu linie histeroscopie da Zoom 4, 6, 10, 16, si 25X Lentilă ≥ 18 Mobil da Diametru roți ≥ 6 cm Frână ≥ 2</p> <p>Alimentarea 220-240V, 50-60Hz Filtru verde da</p>	<p>DA Colposcop DA Colposcopia este o metodă de diagnostic neinvazivă. Împreună cu examenul citocitologic și histologic colposcopia stă la baza diagnosticului precoce al cancerului de col uterin, permițând o decizie terapeutică în timp util și urmărirea fazelor tratamentului. Parametrul Specificația DA Tip LED Putere - 50W echivalent 300 W tip halogen. Timp de viață lampă – 50.000 h DA Suprafața rezistentă la prelucrarea chimică DA Axa de rotație 4 pagina 19 din Manualul de Utilizare Înălțime reglabil DA Lampă de rezervă nu necesita Unghi de rotație - 330 si 360 grade 4 pagina 19 din Manualul de Utilizare Unghiul de iluminare reglabil - nu se reglează unghiul se reglează intensitatea. Înălțimea față de podea min - 680 mm pina la - 995 mm Mișcarea orizontală - 920 mm Compatibil cu linie histeroscopie DA Zoom 4, 6, 9, 14, si 22X Lentilă 22 mm diametru acularului Mobil DA Diametru roți 7 cm Frână 4 – 2 pentru rotirea pe suport, 1 frina pe bratul pentru miscarea verticala, 1 frina pe capul colposcopului pentru rotatie. 4 frine la roti. Alimentarea 220-240V, 50-60Hz DA Filtru verde DA</p>



Declaration of Conformity *Declaración de Conformidad*

OPTOMIC ESPAÑA, S.A.
Madroño 4 F - P. Ind. La Mina
28770 Colmenar Viejo, Madrid
SPAIN

Declares under its solely responsibility that the Class I product:

Declara bajo su exclusiva responsabilidad que el producto de Clase I:

COLPOSCOPE (ANNEX I) COLPOSCOPIO (ANEXO I)

is in conformity with the legislation of Regulation 2017/745 concerning Medical Devices and complies with the standards included in the technical documentation.

es conforme a las disposiciones del Reglamento 2017/745 relativas a Productos Sanitarios y cumple con las normas incluidas en la documentación técnica.

Our Quality Management System, with its continuing certification, guarantees that our products meet the required quality demands.

Nuestro Sistema de Gestión de Calidad, con su certificación continua, garantiza que nuestros productos cumplen con las exigencias de calidad requeridas.

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Válido hasta:

P.O.
JRF



Jorge Rial Ferrario
General Manager
In/En Colmenar Viejo, Spain

ANNEX I TO DECLARATION OF CONFORMITY: COLPOSCOPE

**ANEXO I DE LA DECLARACIÓN DE CONFORMIDAD:
COLPOSCOPIO**

Reference / Referencia	OPTOMIC DESCRIPTION / DESCRIPCIÓN OPTOMIC
19423314	OP-C2 COLPOSCOPE WITH FIBROLUX LED HP LIGHT SOURCE / COLPOSCOPIO OP-C2 C/FIBROLUX LED HP (SIN ESTATIVO)
19423307	OP-C2L COLPOSCOPE / COLPOSCOPIO OP-C2L (SIN ESTATIVO)
19643612	OP-C5 COLPOSCOPE WITH FIBROLUX LED HP LIGHT SOURCE / COLPOSCOPIO OP-C5 C/FIBROLUX LED HP (SIN ESTATIVO)

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General Manager
In/En Colmenar Viejo, Spain



Certificate

No. Q5 034400 0015 Rev. 01

Holder of Certificate: **OPTOMIC ESPAÑA, S.A.**



Madroño 4 F- P. Ind. La Mina
28770 Colmenar Viejo, Madrid
SPAIN

Facility(ies):

OPTOMIC ESPAÑA, S.A.
Madroño 4 F- P. Ind. La Mina, 28770 Colmenar Viejo, Madrid,
SPAIN

Certification Mark:



Scope of Certificate:

Design and Development, Production, Distribution, Sale and Technical Service of Microscopes, Colposcopes, Rigid and Flexible Endoscopes, Cold Light Sources, Camera Systems, Optic Systems, Diagnostic Workstations, Cameras for Endoscopy, Examination Chairs, Stroboscopes and Sale of Medical Equipment

Applied Standard(s):

EN ISO 13485:2016
Medical devices - Quality management systems -
Requirements for regulatory purposes
(ISO 13485:2016)
DIN EN ISO 13485:2016

The Certification Body of TÜV SÜD Product Service GmbH certifies that the company mentioned above has established and is maintaining a quality management system, which meets the requirements of the listed standard(s). See also notes overleaf.

Report No.: 713162857

Valid from: 2020-07-29

Valid until: 2023-07-28

Date, 2020-05-20

Christoph Dicks
Head of Certification/Notified Body

TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD TÜV SÜD
ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT

COLPOSCOPE

OP-C5

THE BEST VISION IN COLPOSCOPY



- 5 different magnifications
- Smooth movement
- Complete braking system

The OP-C5 belongs to the top range of colposcopes manufactured by OPTOMIC. It meets the most demanding requirements, allowing the gynaecologist to carry out diagnosis and perform surgeries in the most reliable and accurate way.

COLPOSCOPE **OP-C5**



WIDE FIELD STEREOSCOPIC VISION



EXCEPTIONAL ILLUMINATION



OPTIONAL VIDEO SYSTEM

- Inclined stereoscopic binocular head, which can also be used as straight binocular tube.
- Adjustment of tightness of head and arm with possibility of complete braking.
- The arm is an autocompensated parallelogram which can be placed in any position.
- Very soft and smooth operation of all functions.
- LED cold light source with swing-in green filter.
- The light source can be removed for its use in other applications such as for example endoscopy, illumination for speculum or head lamp.
- High intensity fiber optic illumination.
- Wide field eyepieces with dioptric adjustment and protective rubber shells.
- 5 steps Galilei magnifications changer and micrometric focusing system.
- Working distance of 300mm with standard objective (f=250mm optional).
- Range of magnifications: 2.5x up to 27x, depending on the chosen combination of objective, binocular and eyepieces.
- Different floor and wall mounting options available.
- Adapter for CO2 laser micromanipulator available.
- Optional monitor supports and trays for laptop or CCD camera.
- Optional systems for video-colposcopy or digital photography.

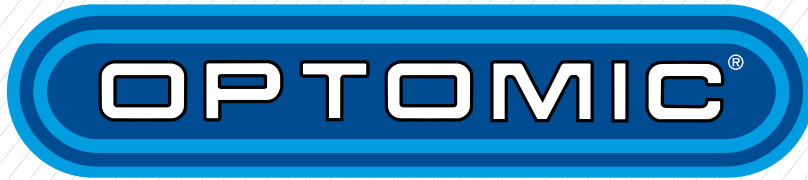
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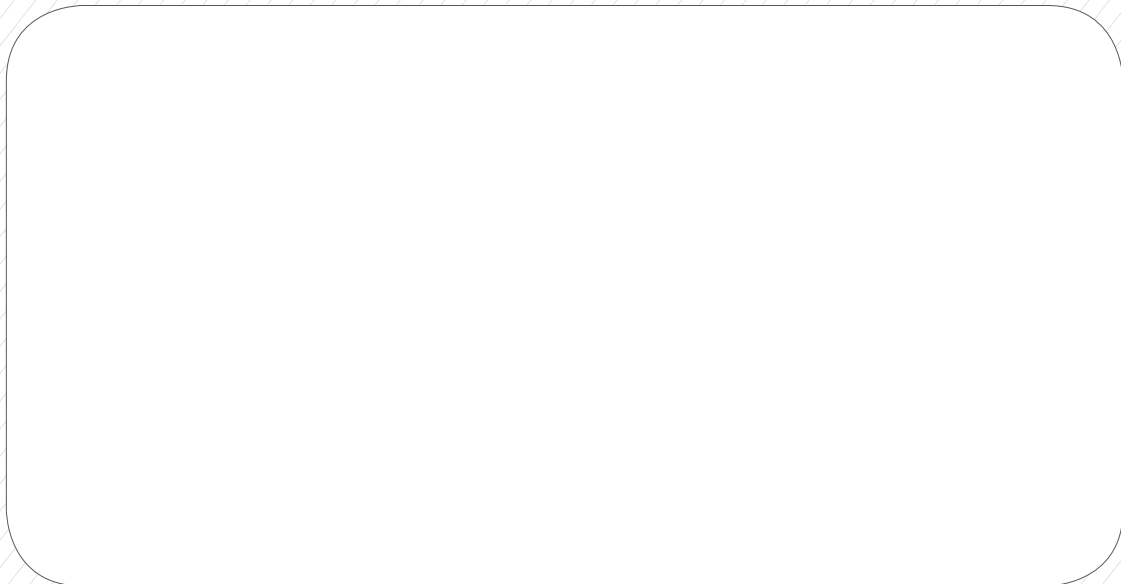


Specifications are subject to change without notice





producing quality








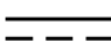









USER MANUAL

Equipment:
Serial number:

SAFETY SYMBOLS AND SIGNS

	Caution
	Warning
	Device type B
	Equipotential
	Stand by
	Manufacturer
	Serial number
	Direct current
	Waste product of electric and electronic devices
	Luminosity, brightness
	Operation instructions
	Alternating current
	Polarity

OPTOMIC ESPAÑA S.A. reserves all rights to change the design and specifications contained in this manual without prior notice.

INDEX

		PAGE
0.	NOMENCLATURE	4
1.	APPLICABILITY	5
2.	INSTALLATION	6
3.	FUNCTIONS AND MOVEMENTS	7
4.	PRIOR REVISION	8
5.	START-UP	9
6.	ADJUSTMENT PRIOR TO USE.....	9
7.	CHANGING A LAMP	10
8.	CHANGING A FUSE	10
9.	MAINTENANCE	11
10.	WARNINGS.....	13
11.	TROUBLESHOOTING CHART	15
12.	TECHNICAL SPECIFICATIONS	16
13.	CONNECTION OF THE VIDEO SYSTEM	17
14.	MAINTENANCE CHART	18
15.	ILLUSTRATIONS	19
16.	NOTES	31

0. - NOMENCLATURE

- | | |
|---|-----------------------------------|
| 1 - Eyepieces | 43 - Base with wheels |
| 2 - Binocular body | 44 - Plastic cover |
| 3 - Milled screw | 45 - Washer |
| 4 - Milled screw | 46 - Screw |
| 5 - Fibre optic cable (head extreme) | 47 - Allen key |
| 6 - 90° blocking milled screw | 49 - Head axle |
| 7 - Arm | 50 - Swivel blocking knob |
| 8 - Strength and blocking regulation knob | 51 - Head fixing screw |
| 9 - Manoeuvring handle | 52 - 45° inclined binocular body |
| 10 - Arm tension regulation knob | 53 - Fibre optic connector |
| 11 - Micrometric knob | 54 - Ventilation Grids |
| 12 - Magnification change knob | 55 - Lamp holder box |
| 23 - Illumination system arm | 56 - Lever |
| 24 - Cold light source | 57 - Ceramic lamp holder |
| 25 - Front blocking knob | 62 - Beam splitter |
| 26 - Rear blocking knob | 63 - Screw |
| 28 - Tube retention screws | 64 - CCD camera |
| 29 - Allen key | 65 - Connector |
| 30 - Power cord receptacle | 66 - Screws |
| 31 - Fuses holder | 67 - Coupling ring |
| 32 - Equipotential | 68 - White balance knob |
| 33 - Fibre optic cable (illumination extreme) | 69 - Automatic white balance knob |
| 34 - Lighting regulator Knob | 70 - Connector of the camera |
| 35 - "Power" LED | 71 - Diaphragm adjustment knob |
| 36 - "Stand by" LED | 72 - Swivel limiting screw |
| 37 - Opening knob | 73 - Identification label |
| 38 - Main power switch | 74 - Focus knob |
| 41 - Light source fixing knob | |
| 42 - Tube | |

1. - APPLICABILITY

The OP-C5 OPTOMIC colposcope has been designed for diagnostic observations, usual operations in doctors' office, as well as small surgical applications.

The OP-C5 OPTOMIC colposcope is an optic equipment of great precision, especially designed for the use in surgical and diagnostic gynaecology.

The system of adjustment of the tightness and the blocking of the arm makes this colposcope the ideal equipment for laser surgery, being available a laser micromanipulator accessory.

The equipment has a high quality optical part, which offers features like the magnification changer of six positions (Galileo system), inclined binocular with dioptric adjustment of both eyes, micrometric focus by rack and pinion, as well as adjustment of the head movement by one manoeuvring handle.

The mechanical part consists of several precision systems in order to make the positioning movements of the colposcope. Thanks to the arm of elevation through tensioned parallelogram, the colposcope is very comfortable and practical to use. Furthermore, you can adjust the tightness of the different movements by means of the blocking knobs.

The illumination is made through a generator of cold halogen light. The light is carried through a fibre optic cable to the objective of the head making a coaxial illumination in the observation axis, which contributes to an excellent illumination of the area to be examined.

In addition to the above-mentioned features, it is possible to add the following accessories:

- CCD colour video camera
- Digital photographic camera
- Co-observation tube
- Laser micromanipulator adaptor
- Illuminating for speculum

2. - INSTALLATION

The installation of the OP-C5 OPTOMIC colposcope very simple and does not require specialized technician.

2.1 FLOOR STAND

- 2.1.1. Place the box on the floor, remove the seals and protectors. **Fig. 5**
- 2.1.2. Two people lift the wheeled base of the unit out of the box [43] and place it on the floor (attention – the base weighs 17,750 kg). **Fig. 6**
- 2.1.3. Introduce the conical end of the support tube [42] into the opening of the base. **Fig. 7**
- 2.1.4. Tilt the entire base and tube unit in order to install the screw [46] with the washer [45] **Fig. 10**. Tighten it firmly using the Allen key [47]. **Fig. 8**
- 2.1.5. Place the unit vertically, so it is supported on all of its wheels, and introduce the plastic cover into the tube [44] in order to hide the metal base. **Fig. 9**

2.2 ASSEMBLY OF THE COLPOSCOPE BODY



WARNING: DO NOT CUT THE PLASTIC SEAL UNTIL THE ARMS HAVE BEEN PLACED ON THE STAND AND THE HEAD IN ITS PLACE.
FIG. 02

- 2.2.1. Remove the packaging, and place the arms of the colposcope on the floor stand by introducing the axis of the body into the tube [42]. Then adjust the screws [28] with the Allen key [29]. **Fig. 11**
- 2.2.2. Introduce the fibre optic cable [33] into its housing in the cold light source. **Fig. 12**
- 2.2.3. Place the axle of the head [49] so the red spot of the axle (A) coincides with the red spot of the extreme of the arm (B). **Fig. 13**
- 2.2.4. Tighten it with knob [50]. **Fig. 13**
- 2.2.5. Place the head of the OP-C5 upon this axle by introducing it by the yoke so the red spot of the yoke (C) coincides with the red spot of the extreme of the arm (B). **Fig. 14**
- 2.2.6. Fix the head firmly to the axle through the two screws [51]. **Fig. 15**
- 2.2.7. To install the manoeuvring handle [9], screw it into its housing. Tighten gently until it keeps back the inclination of the head. **Fig. 16**
- 2.2.8. Place the 45° inclined binocular body [52] and adjust it with the milled screw [3] **Fig. 17**. Place the binocular [2] upon this and tighten with the corresponding milled screw [4]. **Fig. 18**
- 2.2.9. Introduce the extreme of the fibre optic cable [5] into its housing in the head [53] until it "clicks". **Fig. 19**
- 2.2.10. Position the arm completely extended and in a line, that is, with the head unit at one end, followed by the illumination system arm at the other end. Adjust the screw [72] thus limiting the turning of the arm over the illumination system arm, preventing the optical fibre from twisting. **Fig. 20**
- 2.2.11. Connect the power cord to the equipment [30] **Fig. 4**, and then to the mains into a grounded outlet. The OP-C5 OPTOMIC colposcope is now ready to be used.

3. - FUNCTIONS AND MOVEMENTS

The OP-C5 OPTOMIC colposcope has been designed in order to provide all the movements and articulations necessary for correct observation:

3.1 LEFT-RIGHT POSITIONING

The 180° swivel of the illumination system arm [23] Fig. 3 allows the colposcope to be positioned on either side of the patient.

3.2 POSITION AT HEIGHT

In order to achieve the desired height, raise or lower the head unit of the colposcope articulating arm [7]. The position will be stable thanks to its balance system. The up and down movement of the colposcope arm can be adjusted by using two knobs [8] and [10]. Fig. 21 and Fig. 22

Knob [8] allows tightening and totally fixing the up and downing movement of the arm, while knob [10] adjusts the tension of the parallelogram, that is, the strength of the arm when going up or down. This adjustment is very useful if you wish to add or remove an accessory, because then you will be adding weight to the arm or taking it away.

3.3 INCLINATION MOVEMENT OF THE HEAD

The head can be inclined according to the vertical axis. This regulation is made with the manoeuvring handle [9] Fig. 16. When you turn it counter-clockwise, the inclination movement is liberated, and you can position the head. In order to fix this position, turn the knob clockwise.

3.4 SWIVEL MOVEMENT OF THE HEAD

The head can turn 90° with respect to the arm, according to the position of the colposcope (if it is placed left or right to the bed). In order to fix or liberate this swivel movement, use knob [50] Fig. 13, which is placed in the arm. Below this knob, there is a captive screw, which regulates the tightness of the swivel of the head. From factory the unit is supplied with a certain tightness, which can be modified by loosening or tightening the mentioned captive screw.

Opposite the knob [50], you will find a small milled screw [6] Fig. 14 to block the swivel of the head at 90° with respect to the arm. If you would like to turn the head 180° with respect to the arm, you should loosen this screw, place the head, and then tighten the screw again.

3.5 INTER-PUPIL DISTANCE ADJUSTMENT

Use both hands to turn around the binocular body [2], approaching or moving away the eyepieces until their distance coincides with your interpupilar distance. Fig. 23

3.6 DIOPTRIC CORRECTION ADJUSTMENT

By turning around the eyepieces [1] Fig. 23 the dioptric correction can be adjusted to the need of your eyes, both for near-sightedness and far-sightedness or set at 0 for normal eyesight (Ametropia).

3.7 CHANGE OF MAGNIFICATION

The magnifications of the OP-C5 OPTOMIC colposcope can be changed either with the left or the right hand, by turning the knob [12] until it "clicks", which means that the position has been reached. Fig. 24

The marks on the colposcope body shows the magnification factor: 0,4 – 0,66 – 1 – 1,5 – 2,5, indicating the corresponding magnification according to the magnification table (page 20).

3.8 FINE FOCUS

The OP-C5 OPTOMIC colposcope is prepared to make a direct focus by means of the arm movement. However, if you need a fine focus, this can be obtained by using the micrometric knob [11]. Fig. 25

3.9 TIGHTNESS REGULATION OF HORIZONTAL MOVEMENTS

The horizontal swivel of the colposcope arm, as well as the swivel of the illuminating system arm, are made of high resistant conical bearings, which eliminate free movements and allow a smooth movement, which sometimes require a little tightness. This is obtained by carefully adjusting the knobs [25] and [26]. If you want to block these movements totally, tighten the mentioned knobs very firmly. Fig. 26

In order to lessen the firmness or remove the blocking, previously introduced, the knobs should be loosened, turning them counter-clockwise to their maximum.

3.10 COLD LIGHT SOURCE









The illumination system of the OP-C5 is removable, making it possible to remove the cold light source for other specialties, as for example Endoscopy.

To remove the cold light source, disconnect the fibre optic cable and loosen the fixing knob [41] Fig. 3.

To reinstall it, place the light source under the arm support [23] and adjust again the knob [41]. Connect the fibre optic cable again.

4. - PRIOR REVISION

Before starting, check the following:

- 4.1  The lamps should be firmly installed in their corresponding housing, with the pins correctly introduced into the ceramic lamp holder. Please attach according to the lamp holder box's label.
- 4.2  The lighting regulator knob [34] Fig. 3 should be in the OFF position, with the white mark of the knob coinciding with the smallest circle.
- 4.3  Check that the mains voltage used is the one given in the identifying label [73] and in the fuse holder. Fig. 4
- 4.4  Verify that the “**GROUNDING**” of the electrical system is in proper condition and is correctly connected to the equipment.
- 4.5  Check that the ventilation grids [54] Fig. 3 are well clear and that there is no obstruction within at least 10cm.
- 4.6  Verify that in the location where the colposcope is to be installed there is no source of water or liquid nearby which could come into contact with the equipment.
- 4.7  Check that there are no gases or emanations of flammable substances in the area.
- 4.8  Verify that the fuse holder is installed with a fuse and that it is the correct type [31] Fig. 28

5. - START-UP

- 5.1 Connect the cord to the device [30] Fig.28 and then to the mains to a grounded outlet.
- 5.2 Turn on the current [38] Fig. 28 (the "stand by" LED [36] Fig. 27 will light up). Tuning the knob [34] clockwise Fig. 27 will switch on the equipment (the "power" LED [35] Fig. 27 will light up). This knob regulates the light intensity, which can be increased to its maximum.



The position of maximum illumination reduces the life span of the lamp.



In any lighting position the fan will be functioning. If, for any malfunctioning, the fan stops working, switch off the equipment as the high temperature generated could burn out the lamp. Contact the technical service immediately.



While the equipment is not in use, it is recommended to keep it turned off.

6. - ADJUSTMENT PRIOR TO USE

- 6.1. Loosen the knurled screw [4] and remove the binocular [2] from the head Fig. 18. Take it and observe an object (non luminous itself) from a distance greater than 30 m.
- 6.2. Observe the object with one eye, the right one for example, and with the eyepiece's dioptre correction ring focus the image until you can see it with complete clarity.
- 6.3. Then, without moving the binocular, do the same with the other eye until the image is perfectly focused.
- 6.4. While performing this operation, the binocular should not be moved, therefore it is advisable to rest it on a support.
- 6.5. Take the binocular in both hands and observe the same distant object now focused, opening or closing the body of the binocular until there is a single and centred image.
- 6.6. Replace the binocular on the head unit.

After this process, the interpupilar distance has been corrected, and the binocular has been focused, eliminating any possible visual anomalies. Write down the position of both eyepieces and the measurement of the interpupilar distance, because if the colposcope is used by others these measures may be altered.

- 6.7 Connect the equipment to the power supply, switch on the colposcope light source and observe what you wish to examine. Use first the highest magnification, seeking the best image with the focusing system, and then change to the magnification required. The equipment will always be focused as long as the focusing distance is the same.

Some people experience difficulties seeing a single image when using a stereoscopic binocular equipment. With practice and a few exercises these problems will disappear almost entirely.

- a) It is very important to have the interpupilar distance perfectly adjusted. Focus both eyes and practise as much as possible these exercises.
- b) Relax and observe through the eyepieces, as if the object was at a great distance. You are observing through a system of parallel beams. The eyes must be completely relaxed and should not converge the way they do when observing an object from a short distance.
- c) If this cannot be achieved, repeat point (b) exceeding the focus level and then moving the colposcope back until the object comes into focus.
- d) Another way is to observe, above the binocular eyepieces, a remote object in the room. Maintaining the level of convergence, *as if you were still looking at the same object*, lower your head to interpose the colposcope, which should be previously focused on an object.

Use with a Patient: The use with a patient is very easy and similar to the previous observation. Simply keep in mind that when observing deep cavities, the head of the colposcope should be lowered until the observation axis is in line with the cavity or with the axis of the speculum.

7. - CHANGING A LAMP

This unit has two lamps. Having a replacement lamp will allow the examination to continue without loss of time in the case that one burns out. The following is a description, firstly, of a quick lamp change and secondly, of the substitution of a burned out lamp.

CHANGE OF A LAMP DURING AN EXAMINATION:

- 7.1 Turn the lighting regulator knob [34] Fig. 3 to the “OFF” position.
- 7.2 Turn the opening knob [37] counter-clockwise and extract the lamp holder box [55]. Fig. 29, 30 and 31
- 7.3 Rotate 180° the lamp holder box and introduce it again into the cold light source making it coincide with the guides. Fig. 32
- 7.4 Screw the opening knob, turning it clockwise, in order to attach the lamp holder box [55] Fig.37. Now the light source is in perfect working condition to continue with the examination.

Take the precaution to replace the burned out lamp once the examination is over.


CHANGE OF A BURNED OUT LAMP:



VERY IMPORTANT: BEFORE CHANGING THE LAMP DISCONNECT THE EQUIPMENT FROM THE ELECTRICAL SUPPLY AND VERIFY THAT THE LIGHT SOURCE AND THE LAMP ARE COMPLETELY COOLED

- 7.5 To proceed with the changing of the burned out lamp, begin by performing steps 7.1 and 7.2.
- 7.6 Then, use the lever [56] to lift the burned out lamp from the ceramic lamp holder [57] until it can be removed by hand. Fig. 33
- 7.7 In the same position, introduce the new lamp. Press with your fingers to put it into its final position. Keep in mind that the two flaps of the glass parabola should coincide with the corresponding housing of the metal lamp fitting (see diagram on the lamp holder box). Fig. 34, 35 and 36
If this was not performed correctly, the lamp may be displaced or its pins may not have a proper connection, which will affect the quality of the light or the life span of the lamp.
- 7.8 When the lamp has been replaced, proceed with step 7.4.

8. - CHANGING A FUSE

- 8.1  Switch off the unit [38] Fig. 28 and disconnect the power cord from the mains.
- 8.2 Disconnect the power cord from the light source [30] Fig. 28.
- 8.3 With the help of a small screwdriver lift the fuse holder [31] Fig. 28 and change the fuse taking care not to remove the fuse holder sheathing (beige-coloured), as this connects the different voltages of each country. In the case that the mentioned sheathing is removed, insert it again, verifying that the voltage on the identification label is the same as that where the equipment will be connected.
- 8.4 Then introduce the fuse holder in its position, pressing it until it “clicks”.
- 8.5 Connect the power cord to the light source and then to the mains.

9. - MAINTENANCE



VERY IMPORTANT: WHEN CARRYING OUT ANY CLEANING OR MAINTENANCE ACTIVITIES, DISCONNECT THE EQUIPMENT FROM THE MAINS

To clean and disinfect the external surface of the equipment use a clean cloth, barely dampened with a disinfectant solution (follow the dissolution instructions of the manufacturer). Clear up with a cloth dampened with water. Take care that no fluid gets inside the equipment.

DO NOT USE DETERGENTS, SOLVENTS OF OTHER AGGRESSIVE AGENTS



As this is electrical equipment which produces internal heat, the condition of the components should be checked periodically (at least once every 6 months) to ensure the correct functioning of the equipment.



To carry out any type of revision or maintenance contact the manufacturer.



All REVISIONS, REPAIRS, MAINTENANCE AND MODIFICATIONS should be registered, with the date and signature of the authorized company or person carrying out the work, in the **Maintenance Chart** of this manual.

ANNUAL MAINTENANCE AND INSPECTION

Manufacturer's recommendations:

OPTOMIC ESPAÑA S.A. recommends that an expert technician carries out a regular inspection of the functioning and safety of the equipment. Said inspection should be carried out annually. Regular inspections can contribute to the anticipation and prevention of eventual malfunctions and problems and increase the safety and life of the equipment.

Safety Test:

Make a visual test. Pay special attention to the following points:

- The fuse corresponds to the value indicated by the manufacturer.
- The indications and labels of the device are readable.
- The mechanical conditions of the unit permit a safe functioning of the equipment.
- There is no dirt which may affect the equipment negatively.
- Measure the leakage current according to EN 60601-1 and EN 60601-1-1.

The admissible values of permanent leakage current and auxiliary current to the patient are established in the below table for alternating current and continuous current and for the waves composed with frequencies lower than 1 kHz.

For frequencies over 1 kHz, the admissible values according to the table must be multiplied by the numerical value of the frequency in kHz. Nevertheless, the results of the multiplication should not exceed 10 mA.

TABLE

Admissible values for permanent LEAKAGE CURRENT and AUXILIARY CURRENT TO THE PATIENT, in milliamp

CURRENT	B TYPE		
	Normal condition	Single Fault Condition	
Earth leakage current	0,5	1 ¹⁾	
Enclosure leakage current	0,1	0,5	
Leakage current to the patient	0,1	0,5	
Leakage current to the patient (Supply voltage in the signal output part)	-	5	
Leakage current to the patient (Supply voltage in the applicable part)	-	-	
Auxiliary current to the patient	D.C.	0,01	0,05
	A.C.	0,1	0,5

1) The only single fault condition for earth leakage current is the interruption of one of the leading in wires, one each time.

- Measure the protection wire resistance according to EN 60601. The protection wire resistance should be measured with the main supply connected. The maximum value is 0.2 Ω.
- Measure the insulation resistance with 500-700V DC. The minimum value is 50 MΩ. It is not admitted to measure the tension resistance with high voltage.









10.- WARNINGS

THE INFORMATION GIVEN BELOW IS VERY IMPORTANT FOR SECURITY REASONS AND SHOULD BE TAKEN INTO CONSIDERATION DURING THE USE OF THIS EQUIPMENT



OPTOMIC ESPAÑA S.A., MANUFACTURER OF THIS EQUIPMENT, TAKES NO RESPONSIBILITY FOR PERSONAL OR MATERIAL DAMAGES OR INJURY SUSTAINED BY THIRD PARTIES RESULTING FROM THE WRONGFUL OR INADEQUATE USE OF THIS EQUIPMENT, DISREGARD FOR THE INSTRUCTIONS PROVIDED IN THE PRESENT MANUAL, REPAIRS CARRIED OUT BY UNQUALIFIED OR UNAUTHORISED PERSONNEL, DEFICIENT MAINTENANCE OR CARE FOR THE EQUIPMENT

- 10.1**  At the focal point of the halogen lamp with parabolic dichroic reflector, a very high temperature is achieved. For this reason - and in spite of the heat dispersers - the extreme of the fibre optic cable, which is in contact with the focus point, becomes hot. Allow the fibre optic cable to cool down completely before disconnecting it from the cold light source.
- 10.2**  The halogen light source of the OP-C5 OPTOMIC colposcope is of 150w, and emits an intense beam of light. Never look directly into the light outlet. As a safety measure, it is advisable to connect the fibre optic cable before turning the illumination on.
- 10.3**  As the colposcope is an electric unit, which emits a very intense light, it is important that only qualified personnel use the equipment. Never leave the unit unattended when children are near.
- 10.4**  Before replacing the lamps, the colposcope must be disconnected from the mains and cooled down completely.
- 10.5**  The equipment should never be used where there is a risk of explosion.
- 10.6**  This device has electronic components, which may be harmful to the environment if they are not managed correctly. When the effective life of the colposcope is over, the national and local waste management norms must be respected, or the colposcope may be returned to OPTOMIC ESPAÑA S.A., for the proper knob and disposal of these components.



OPTOMIC ESPAÑA, S.A. TAKES NO RESPONSIBILITY FOR PHYSICAL AND/OR MATERIAL DAMAGES OR INJURIES TO THIRD PARTIES RESULTING FROM THE INCORRECT INSTALLATION OF THE OP-C5 OPTOMIC COLPOSCOPE



ACCORDING TO LEGAL NORMS THE MANUFACTURER ONLY ACCEPTS LIABILITY FOR THE EFFECTS ON SAFETY, RELIABILITY AND PERFORMANCE OF THE EQUIPMENT IF THE MAINTENANCE PROCEDURES, REPAIRS AND MODIFICATIONS ARE CARRIED OUT BY THE MANUFACTURER OR BY A PERSON AUTHORIZED BY THE MANUFACTURER. OTHERWISE, THE MANUFACTURER WILL NOT ASSUME ANY RESPONSIBILITY, AND THE GUARANTEE PERIOD WILL EXPIRE AUTOMATICALLY.

THE MANUFACTURER WILL NOT ACCEPT ANY RESPONSIBILITY FOR THE INADEQUATE OR IMPROPER USE OF THE EQUIPMENT OR IF IT IS USED FOR PURPOSES OTHER THAN THOSE FOR WHICH IT WAS DESIGNED.

COMPONENTS RELATED WITH SAFETY MUST BE REPLACED BY ORIGINAL PARTS ONLY.

AFTER ANY MODIFICATION OR REPAIR A SAFETY TEST WILL BE CARRIED OUT. THE EQUIPMENT MUST MEET ALL TECHNICAL SAFETY SPECIFICATIONS ACCORDING TO APPLICABLE NORMS.

ALL MODIFICATIONS, REPAIRS AND TESTING SHOULD BE NOTED ON THE MAINTENANCE CHART.

11. - TROUBLESHOOTING CHART

In case of a problem or malfunction, consult the chart below to determine the cause and possible solution. If the solution is not found, contact the authorized technical service.

PROBLEM	POSSIBLE CAUSE	ACTION
The light source does not function when the knob [34] is turned to any position.	Power cord not connected. Defective power cord. Mains voltage is not identical to voltage given on unit nameplate. Mains electrical outlet is defective. Defective fuse.	Plug in the power cord. Replace cord. Check and verify. Check and verify. Replace fuse.
The lamp does not light up but the "power" LED [35] is on.	Defective lamp. Ceramic lamp holder is not connected.	Replace the lamp. Connect the lamp holder.
The light intensity is not correct for the position indicated.	The lamp is defective. Filament deterioration in the lamp bulb. The lamp is out of place or not properly installed. Loss of power.	Replace the lamp. Replace the lamp. Connect the lamp. Check the mains.
Excessive temperature in the light source.	Fan is not working. Cooling air outlets are not free. High temperature in the room. Unit directly under sunlight. Unit installed by a heater.	Notify authorized Repair Service. Let air outlets free. Ventilate the room. Place unit out from the sunlight. Place it far from the heater.
Environment particles are present in the image	Movement has made some particles enter the field of view	Remove the eyepiece and blow with a rubber bulb

RETURN OF THE EQUIPMENT

Should it be necessary to send back the equipment, only the original packing should be used. Optomic España S.A. is not to be held responsible for the damages or defects produced during the transport due to a deficient packing. When returning the equipment, please enclose the following information:

- Name of the owner
- Complete address of the owner
- Serial number
- Description of the defect(s)

12. - TECHNICAL SPECIFICATIONS

12.1 ELECTRICAL

Input voltage	100V-230V / 50 Hz -60 Hz
Power consumption.....	180 VA
Halogen light source.....	green filter and light intensity adjustment
Lamp	150W double cooled lamp
Halogen dichroic lamp.....	“PHILIPS” 6423 XHP FO ERF A1/232 GZ6.35- 15V 150W
Fuses	2 x T 2, 00 A / T 2, 50 A / T 3, 15 A
Electrical shock protection UNE EN 60601/ IEC 601	Class I
Classification.....	B
Medical equipment group.....	60601-2
Interference suppression.....	Value limit B

12.2 MECHANICAL/OPTIC

Maximum distance of the head	1.295 mm
Minimum distance of the head	1.010 mm
Distance between head and centre of the floor stand	920 mm
Head inclination	37°
Body weight	20 kg
Floor stand weight	43 kg
Eyepiece	10x Wide Field
Optional eyepiece.....	12x / 16x
Binocular	45° Inclined
Interpupillary distance	54 – 74mm
Dioptric adjustment.....	+/- 6 dioptries
Objective	f=300mm (f=250mm optional)
Magnifications changer	5 Positions Galileo system
Illumination.....	Coaxial through the objective
Light conduction	Fibre optic cable
Fibre optic connector.....	in cold light source, Storz type. In head, recess with “click”
Magnifications.....	According to the below table

12.3 MAGNIFICATION TABLE

BINOCULAR f=170mm	OBJECTIVE f=250mm					OBJECTIVE f=300mm				
	2,5x	1,5x	1x	0,66x	0,4x	2,5x	1,5x	1x	0,66x	0,4x
Magnification Changer	22x	14x	9x	6x	4x	18x	11x	7x	5x	3x
Magnifications	11	19	28	45	70	14	25	35	50	85
Field of view										

13. - CONNECTION OF THE VIDEO SYSTEM

EQUIPMENT FOR VIDEO-COLPOSCOPY OP-TV6 (OPTIONAL SYSTEM)

- 13.1 Loosen the milled screw [4] and remove the binocular [2] from the colposcope. **Fig.18**
- 13.2 Place the beam splitter [62] with the optic elbow on the right **Fig. 38**.
- 13.3 Tighten the screw [4] again.
- 13.4 Place the binocular [2] on the beam splitter [62] and fasten the screw [63]. **Fig. 38 and 40**
- 13.5 If the CCD camera [64] **Fig. 38** is not attached on the beam splitter, screw it to the coupling ring [67]. **Fig. 40**
- 13.6 Connect the video signal cable to the video output [65] **Fig. 39** of the camera [64], and then to the monitor or video. Turn on the video equipment.
- 13.7 Connect the power cord 12v to the connector of the camera and then to the mains.
- 13.8 Focus any object and verify that the image is upright and focalized, with respect to the image of the colposcope.

If not, loosen the three screws [66] **Fig. 40**, and correct the image by turning the CCD camera. Afterwards, tighten the three screws.

- 13.9 If the image is not focalized, proceed as follows:

With the eyepieces adjusted to your eyes (see section 6), observe an object through the binocular using the largest magnification (2,5x) and, without moving the colposcope, turn the focusing knob [74] **Fig. 40** of the beam splitter, until you are able to see very clearly.

Finally, verify that the image of the monitor is focused with the image of the binocular.

14. - MAINTENANCE CHART

All maintenance work, repairs or modifications should be recorded on the following maintenance chart with the date and signature of the company and/or person who carried them out.

WORK EXECUTED Equipment Nº	REPAIRED BY	DATE	SIGNATURE

ALL REPAIRS OR MODIFICATIONS WERE CARRIED OUT BY AN EXPERT TECHNICIAN IN FULL ACCORDANCE WITH THE SAFETY NORMS ACCORDING TO UNE IN 60601/IEC 601.

15. - ILLUSTRATIONS

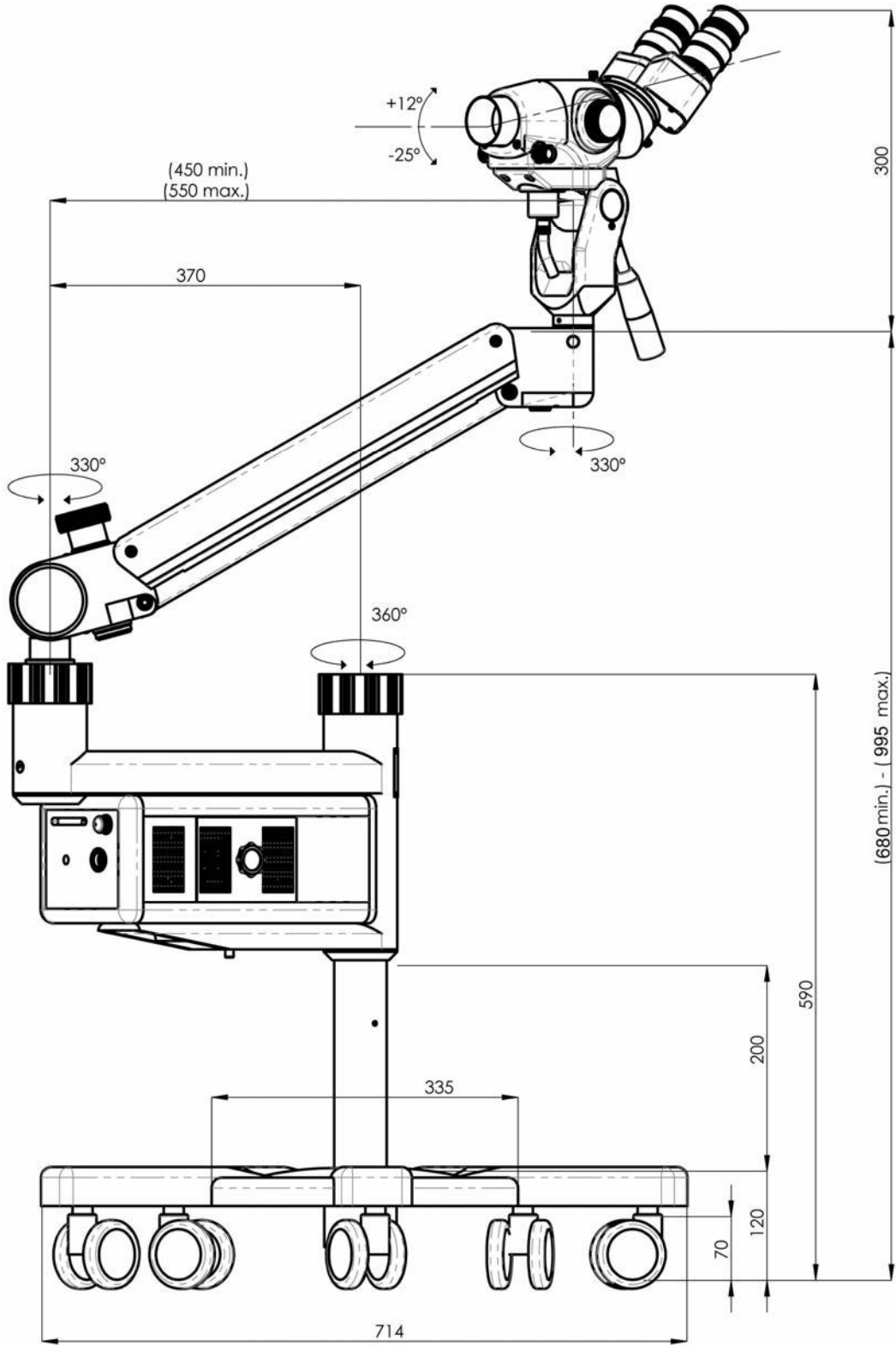


Fig. 1



Fig. 2



IMPORTANT:
DO NOT CUT THE PLASTIC
SEAL UNTIL THE ARMS HAVE
BEEN PLACED UPON THE
STAND AND THE HEAD IN ITS
PLACE.



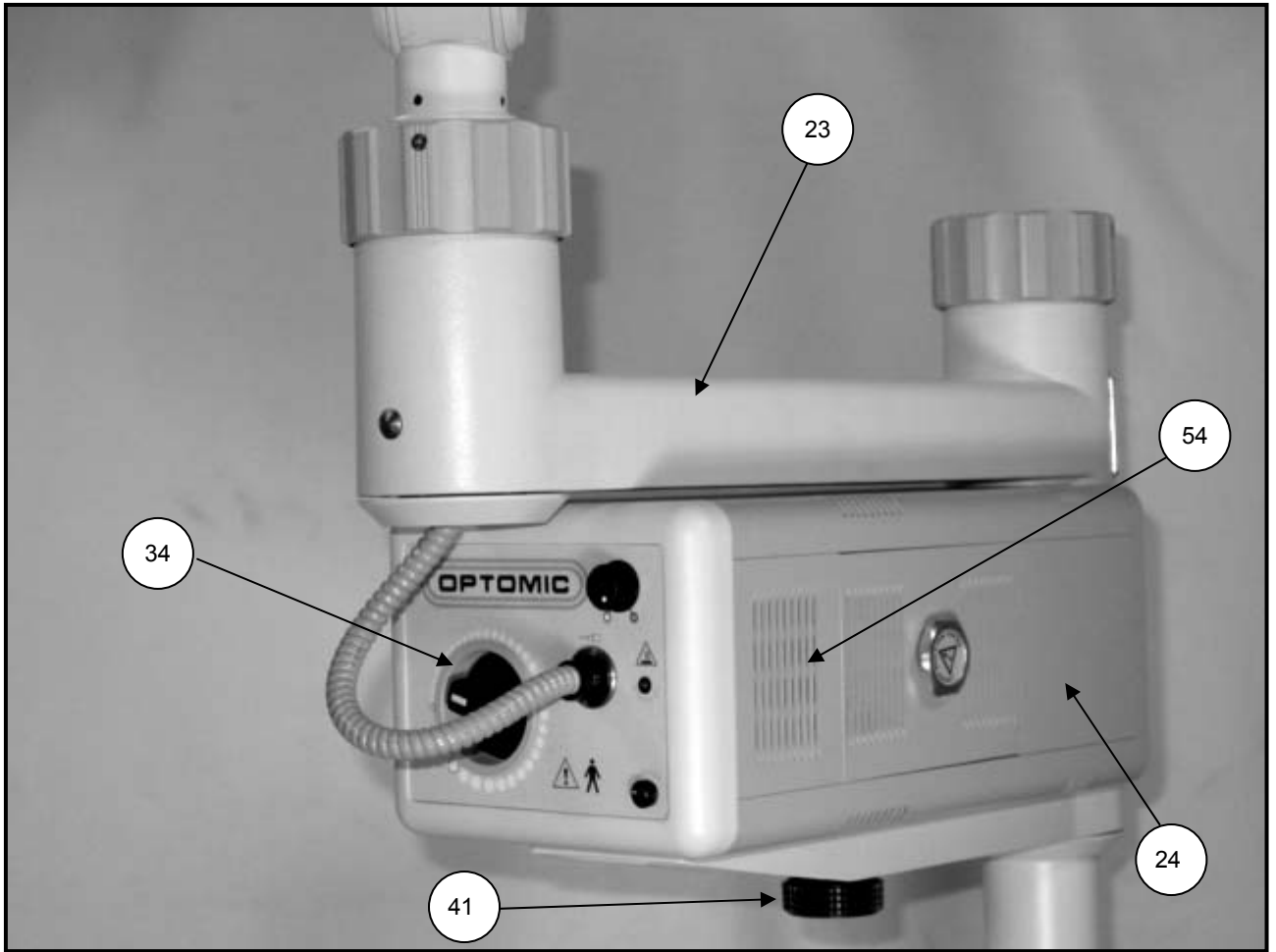


Fig. 3

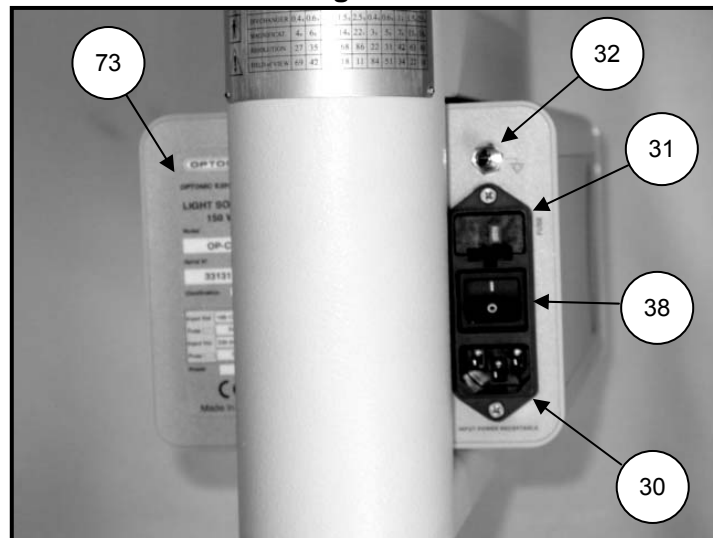


Fig. 4

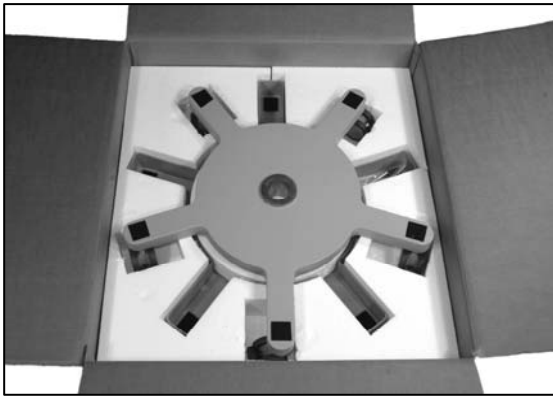


Fig. 5

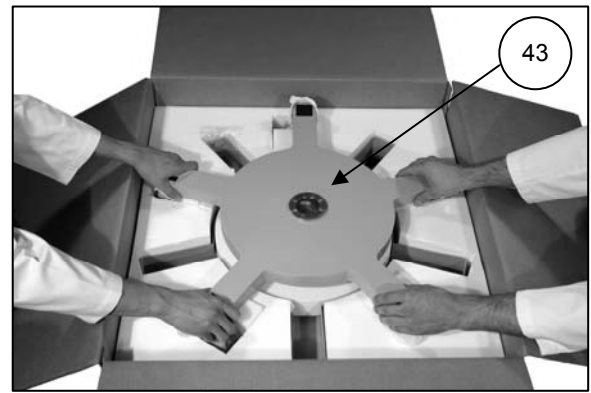


Fig. 6

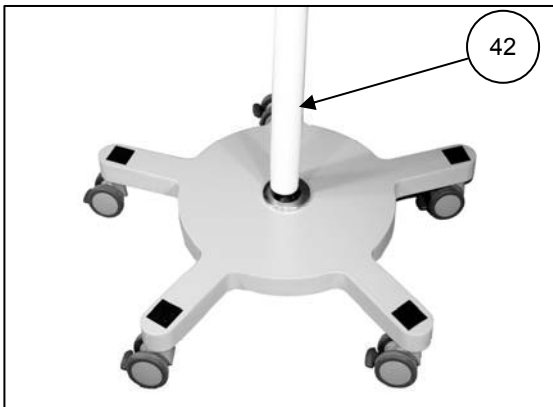


Fig. 7

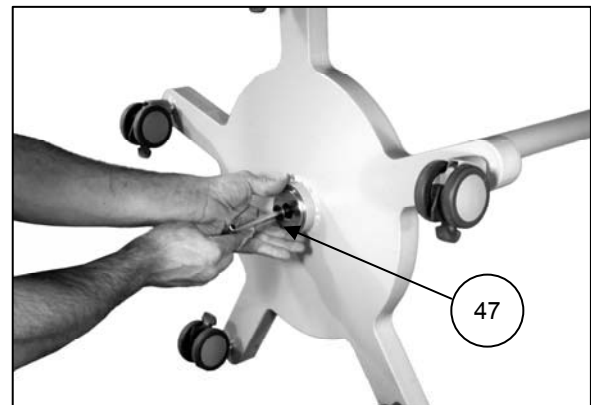


Fig. 8

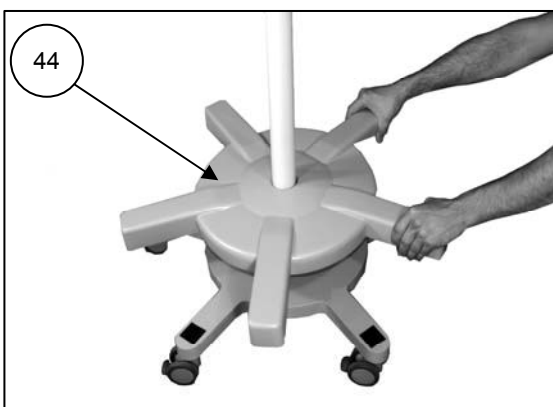


Fig. 9

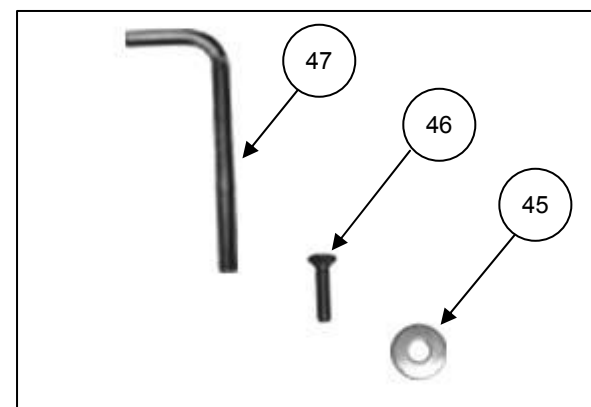


Fig. 10

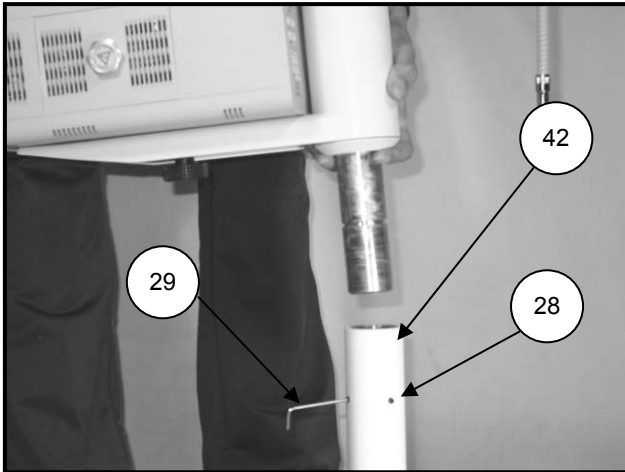


Fig. 11

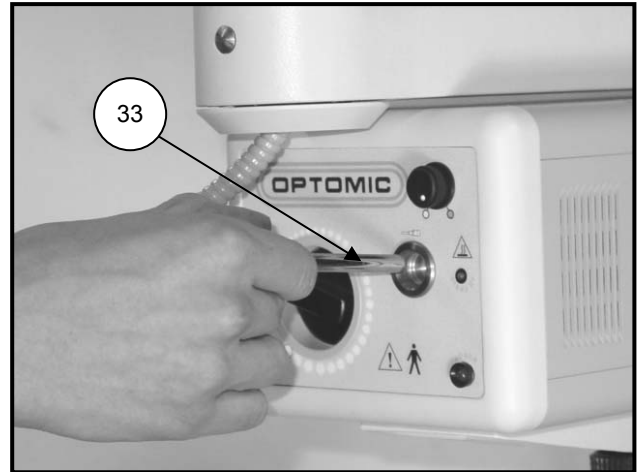


Fig. 12

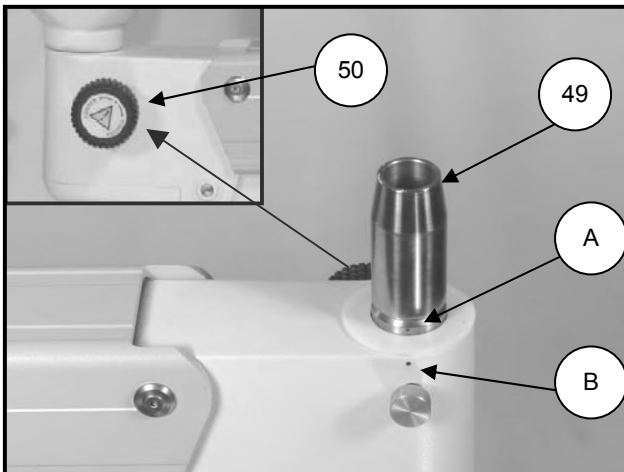


Fig. 13

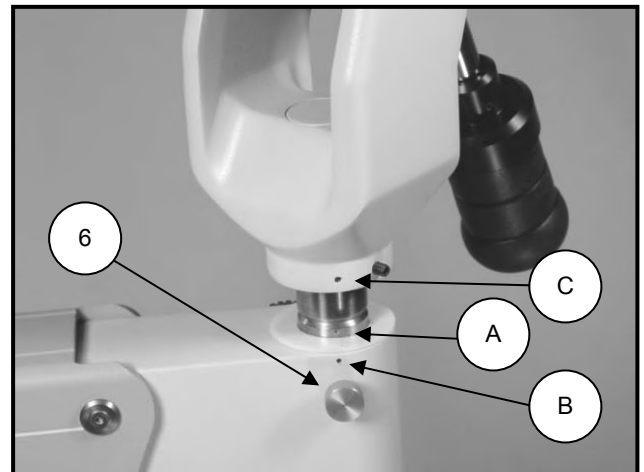


Fig. 14

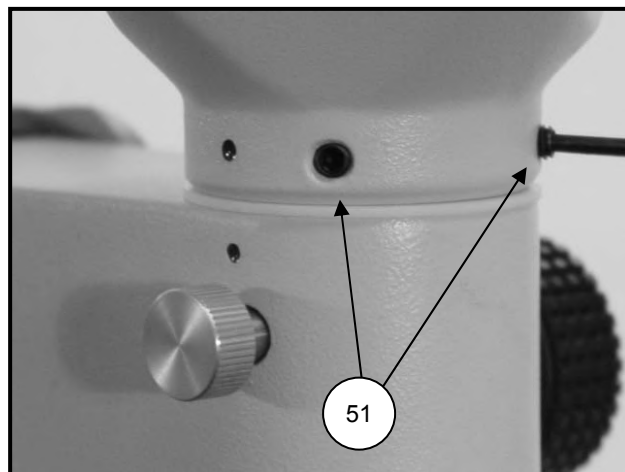


Fig. 15

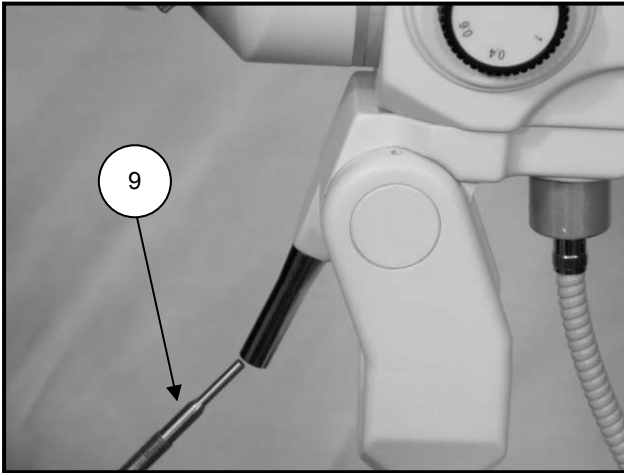


Fig. 16

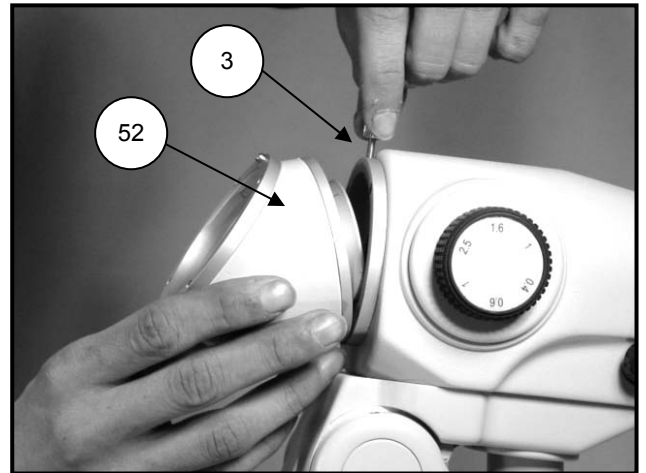


Fig. 17

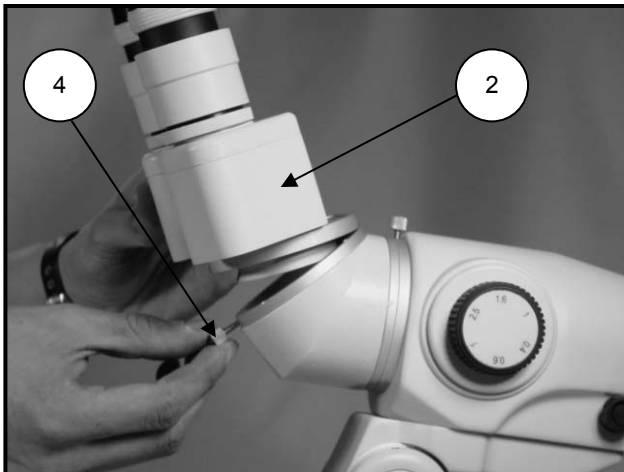


Fig. 18

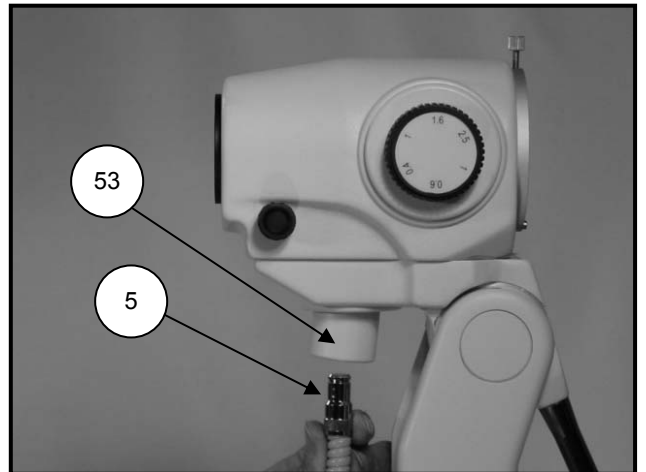


Fig. 19

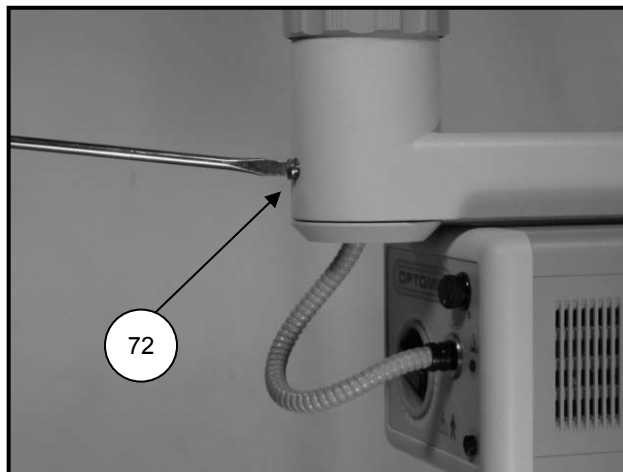


Fig. 20

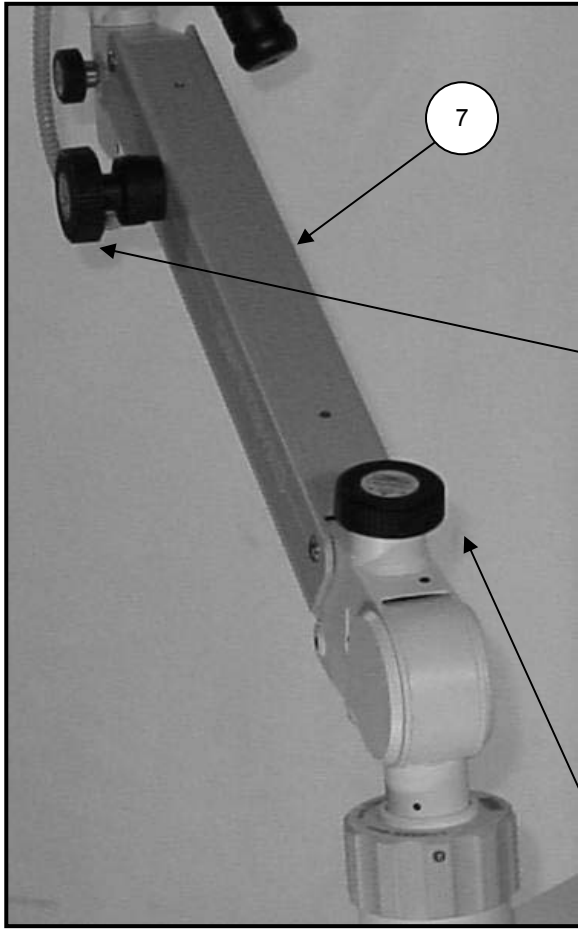


Fig. 21-22

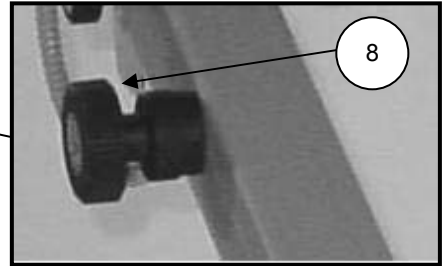


Fig. 21

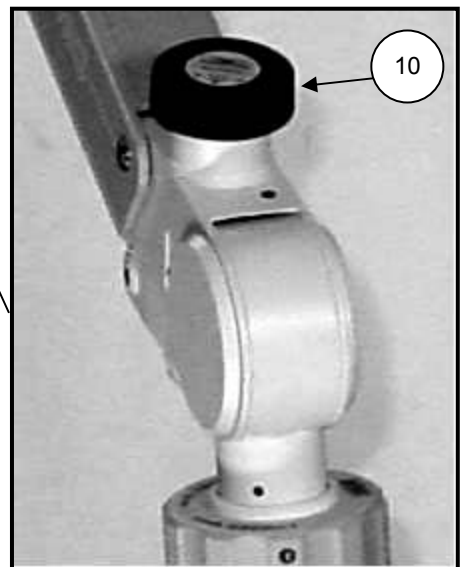


Fig. 22

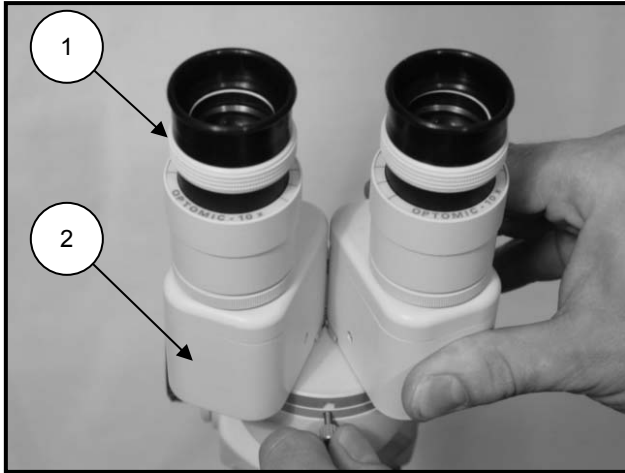


Fig. 23

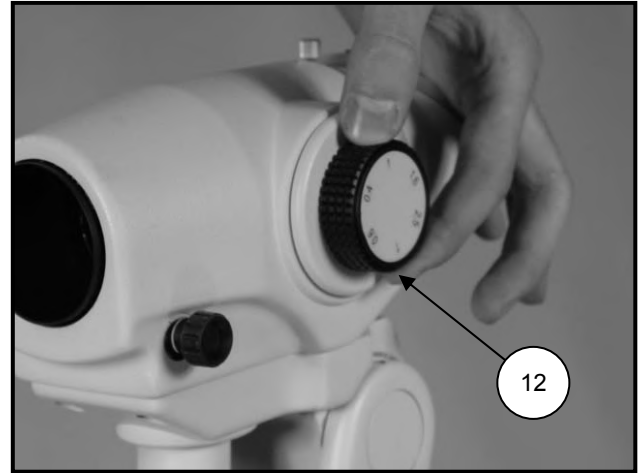


Fig. 24

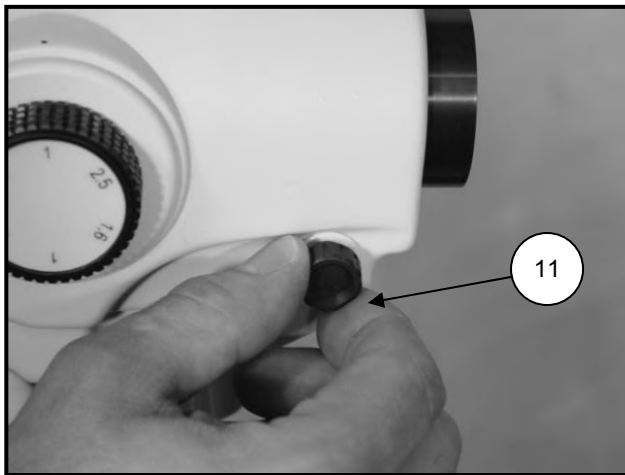


Fig. 25

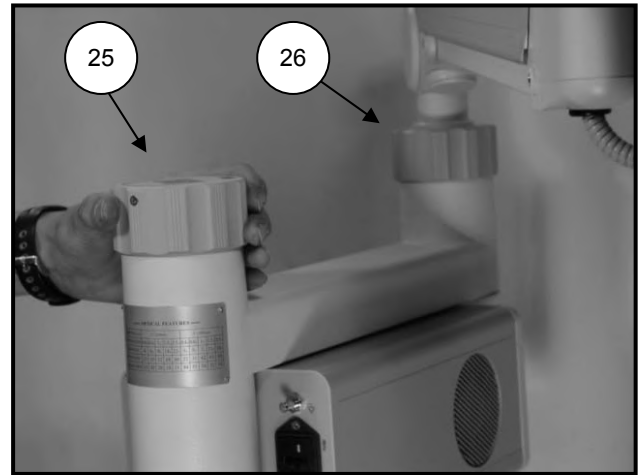


Fig. 26



Fig. 27

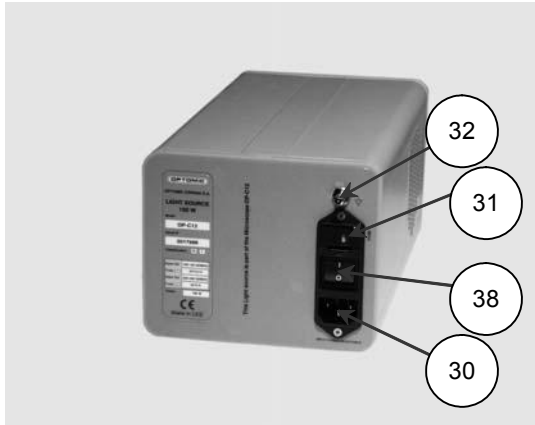


Fig. 28

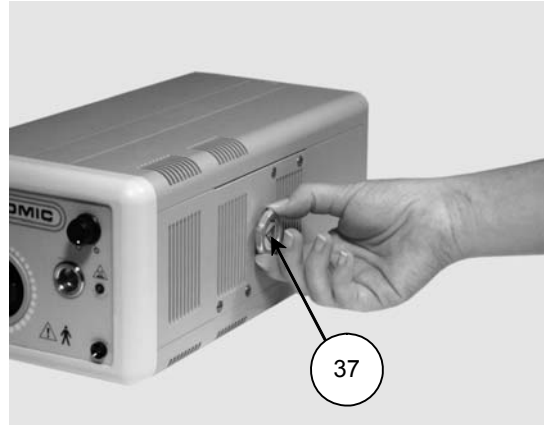


Fig. 29



Fig. 30

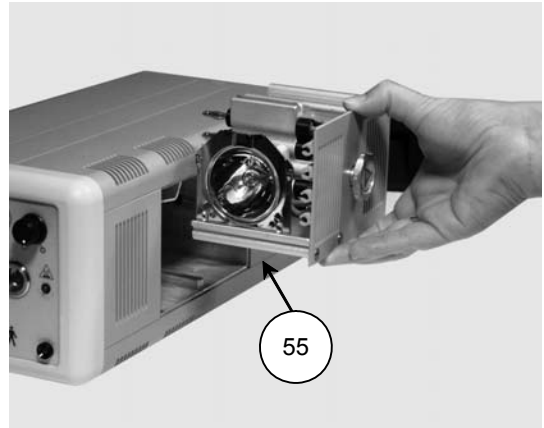


Fig. 31



Fig. 32

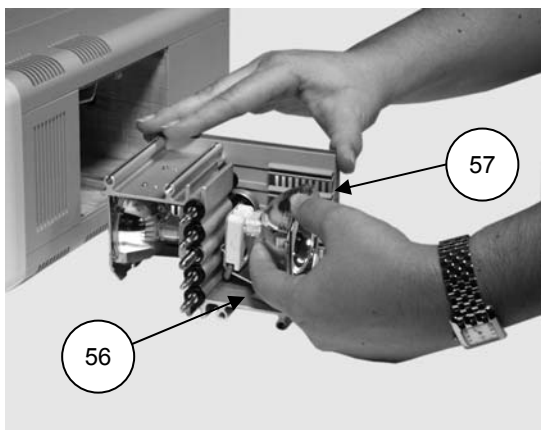


Fig. 33



Fig. 34

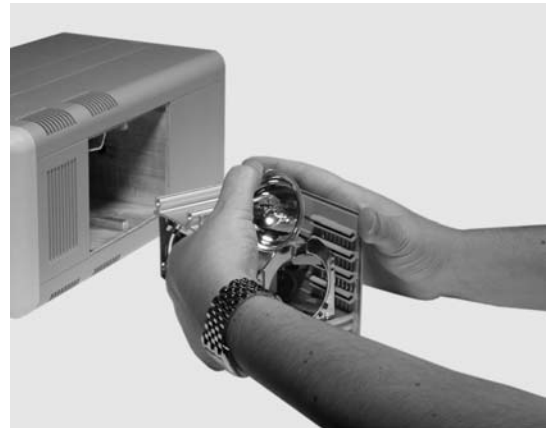


Fig. 35

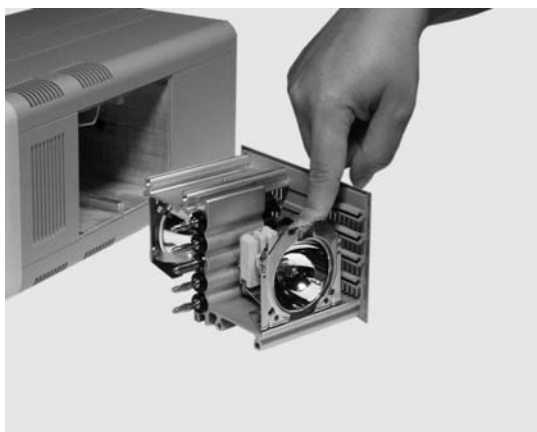


Fig. 36



Fig. 37

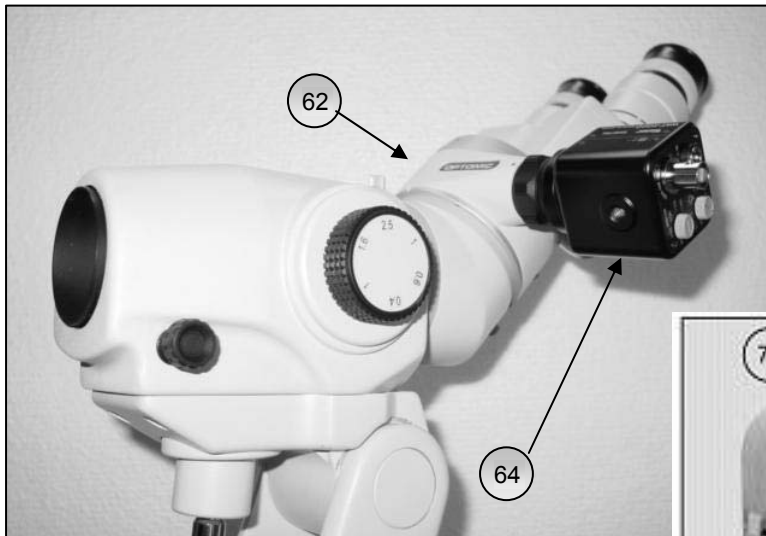


Fig. 38

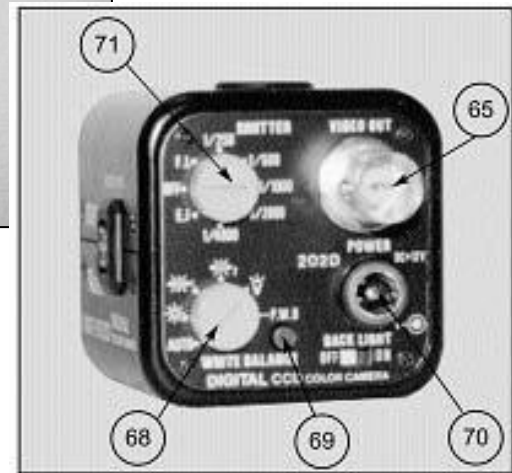


Fig. 39

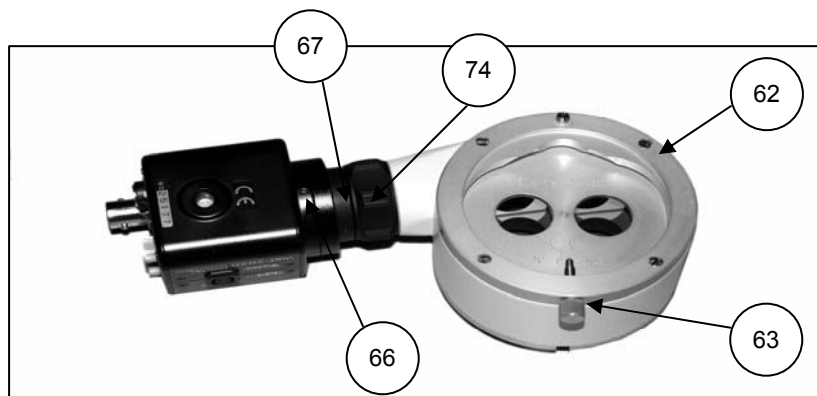


Fig. 40

16.- NOTES

Lined area for notes, consisting of multiple horizontal dashed lines.



producing quality

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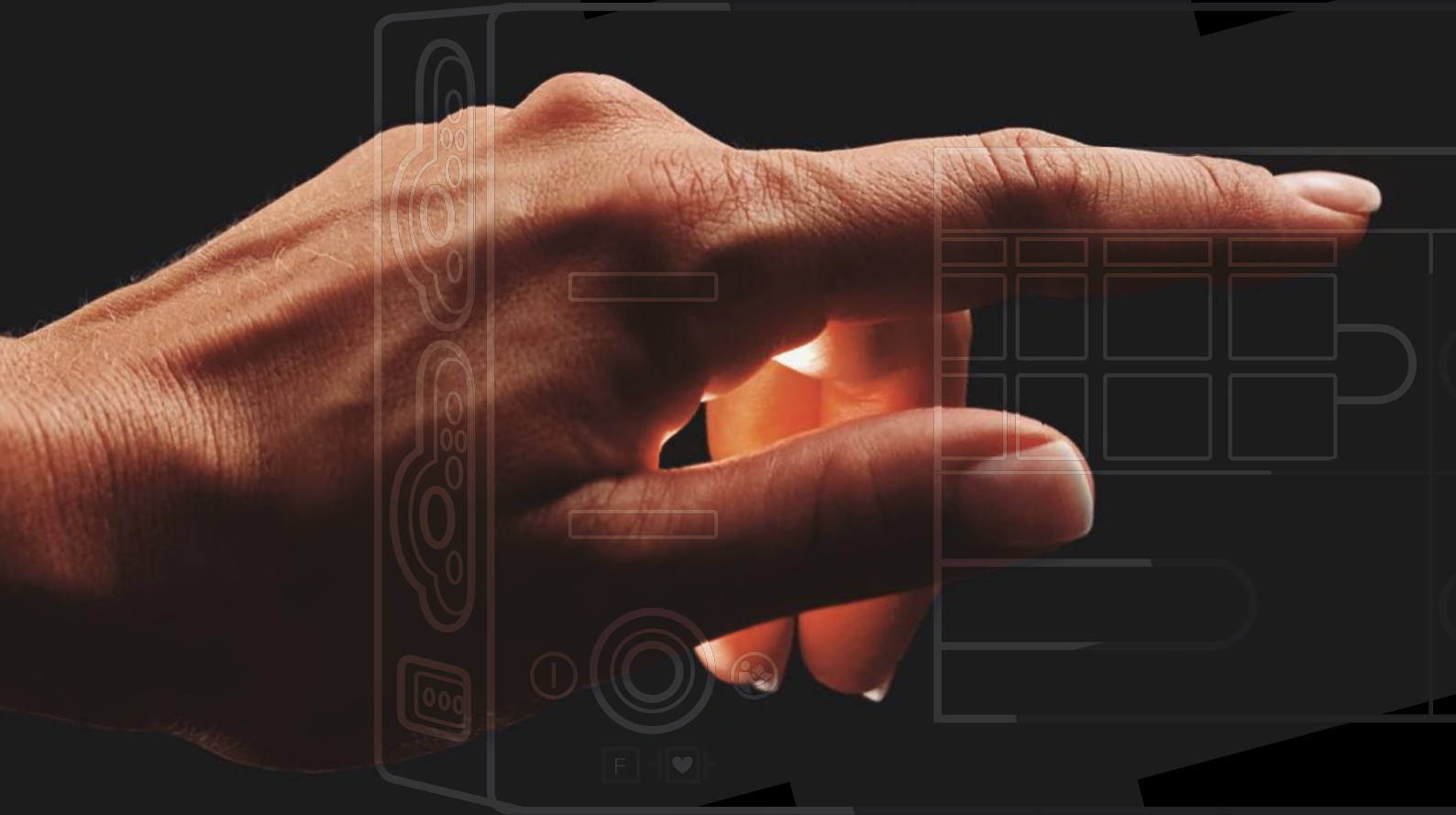


Specificație Completată
Dispozitiv electro-chirurgical cu funția LIGARE (diatermocoagulator caracteristici avansate) cu trolu
Model: ARC-400; Producător: BOWA Medical; Țara: GERMANIA.

Specificarea tehnică deplină solicitată de către autoritatea contractantă	Specificarea tehnică deplină propusă de către autoritatea ofertantă
<p>Dispozitiv electro-chirurgical cu funția „LIGARE,, (diatermocoagulator caracteristici avansate) cu trolu Parametrul Specificația Descriere dispozitiv destinat pentru tăierea și coagularea țesuturilor biologice în procesul actului chirurgical care utilizează curenți electrici de frecvență înaltă Frecvența cuprinsă între 300 KHz și 1 MHz</p> <p>Canale de ieșire Monopolar izolat</p> <p>Comutator de mână da Comutator de picior tip pedală dublă Bipolar da Moduri de lucru Monopolar Tăiere ≥ 400 W Coagulare ≥ 150 W</p> <p>Bipolar Tăiere ≥ 140 W Coagulare ≥ 120 W</p> <p>Regimuri de lucru preselecțate LIGATOR, blend, strong, soft, spray sau analogic minimum 10 regimuri Funcție de autotestare da</p> <p>Canal de ieșire independentă, 4 canale minim 2 bipolare minim 2 monopolare Display LCD sau TFT, de tip tactil</p> <p>Indicatoare Acustic DA vizual DA Control volum sunet DA Accesorii Cablu pentru electrod neutru reutilizabil, min. 2 metri 2 buc. Electrod neutru reutilizabil, tip adult 2 buc.</p> <p>Bisturiu electric cu două butoane (tăiere/ cuagulare), reutilizabil minim 10 clicluri, cablu min 2 metri 2 buc. Lame reutilizabile pentru bisturiu, lungime 145-160 mm 10 buc. Lame reutilizabile pentru bisturiu, lungime 65-80 mm 10 buc. Electrod / pencetă bipolar 195-220 mm, tip</p>	<p>Dispozitiv electro-chirurgical cu funția „LIGARE,, (diatermocoagulator caracteristici avansate) cu trolu DA Parametrul Specificația Descriere dispozitiv destinat pentru tăierea și coagularea țesuturilor biologice în procesul actului chirurgical care utilizează curenți electrici de frecvență înaltă DA Frecvența cuprinsă între 350 KHz și 1 MHz DA pag. 113 User manual Canale de ieșire Monopolar izolat DA pag. 113 din User manual Comutator de mână DA Comutator de picior tip pedală dublă DA Bipolar DA DA pag. 113 din User manual Moduri de lucru Monopolar Tăiere - 400 W DA pagina 115 din User manual Coagulare - 250 W DA pag. 117 din User manual Bipolar Tăiere - 200 W DA pagina 115 din User manual Coagulare - 200 W DA pagina 119 din User manual Regimuri de lucru preselecțate LIGATOR, blend, strong, soft, spray sau analogic minimum 10 regimuri DA este inclus Funcție de autotestare DA la fiecare posnrire si timpul lucrului pentru electrodul neutru. Canal de ieșire independentă, 4 canale DA 2 bipolare DA 2 monopolare DA Display LCD sau TFT, de tip tactil DA 9” pagina 112 din User manual Indicatoare acustic vizual Control volum sunet DA Accesorii Cablu pentru electrod neutru reutilizabil, 4,5 metri 2 buc. DA PN 385-050. Electrod neutru reutilizabil, tip adult 2 buc. DA 242-003 Bisturiu electric cu două butoane (tăiere/ cuagulare), reutilizabil minim 100 clicluri, cablu 4,5 metri - 2 buc. PN 220-145 Lame reutilizabile pentru bisturiu, lungime 154 mm 10 buc. DA PN 520-028 Lame reutilizabile pentru bisturiu, lungime 75 mm 10 buc. DA PN 500-007 Electrod / pencetă bipolar 195-220 mm, tip</p>

<p>reutilizabil 1 buc.</p> <p>Cablu pentru electrod bipolar reutilizabil, min. 2 metri 1 buc.</p> <p>Set LIGATOR reutilizabil, pentru laparoscopie cu lungimea de lucru minim 300 mm compus din: mîner; teaca; pensa dreapta; pensa curbata; cablu de interconectare minim 4 metri. 1 buc.</p> <p>Set LIGATOR reutilizabil, pentru chirurgie de tip deschis cu lungimea minim 230 mm, partea activa a lamei 30 mm lungimea si 3-5 mm latime, cu cablu de interconectare minim 4 metri. 1 buc.</p> <p>Pedală tripla 1 buc.</p> <p>Troliu Mobil pe 4 roți da</p> <p>Minim 2 roți cu frînă da</p> <p>Minim 1 sertar/coș/poliță pentru accesorii da</p> <p>Mîner pentru transportare da</p>	<p>reutilizabil 1 buc. DA PN 605-040/029/057/041/030 la alegerea utilizatorului</p> <p>Cablu pentru electrod bipolar reutilizabil, min. 4,5 metri 1 buc. DA PN 101-140</p> <p>Set LIGATOR reutilizabil, pentru laparoscopie cu lungimea de lucru minim 300 mm compus din: mîner; teaca; pensa dreapta; pensa curbata; cablu de interconectare minim 4 metri. 1 buc. DA PN 770-036+771-036+772-036.</p> <p>Set LIGATOR reutilizabil, pentru chirurgie de tip deschis cu lungimea minim 230 mm, partea activa a lamei 30 mm lungimea si 3-5 mm latime, cu cablu de interconectare minim 4,5 metri. 1 buc. DA PN 760-223</p> <p>Pedală tripla 1 buc. DA 901-031</p> <p>Troliu Mobil pe 4 roți DA 902-022</p> <p>Minim 2 roți cu frînă DA</p> <p>Minim 1 sertar/coș/poliță pentru accesorii DA 902-912</p> <p>Mîner pentru transportare DA 902-913</p>
---	---

ELECTROSURGERY.
COMPLETE.



BOWA
EINFACH SICHER

Elektrochirurgie made by BOWA – Einfach sicher

Elektrochirurgia made by BOWA – po prostu pewna

Electrosurgery made by BOWA – Simply safe

Электрохирургия BOWA – просто безопасно

Electrocirugía made by BOWA – Sencillamente seguro

„Einfach sicher“ ist mehr als nur ein Versprechen. Es ist für uns die Verpflichtung, stets über den momentanen Standard hinauszudenken. Diese Haltung führt uns zu Lösungen, die neue Perspektiven aufzeigen und Sie in Ihrer Arbeit bestmöglich unterstützen.

"Po prostu pewne" jest czymś więcej niż tylko obietnicą. Dla nas jest to zobowiązanie do podążania po nieutartych ścieżkach. Takie podejście prowadzi do rozwiązań, które otwierają nowe perspektywy i pomagają w optymalizacji pracy.

„Simply safe“ is more than just a promise. For us it is the commitment to always think past the current standards. This approach leads us to solutions that open up new perspectives and support you optimally in your work.

"Просто безопасно" – больше, чем обещание. Это наше обязательство мыслить шире действующих стандартов. Такой подход приводит нас к решениям, которые открывают новые перспективы и наилучшим образом поддерживают вас в вашей работе.

„Sencillamente seguro“ es más que una mera promesa. Tenemos el compromiso de pensar siempre más allá del estándar del momento. Esta actitud nos lleva a soluciones que muestran nuevas perspectivas y que le ayudan en su trabajo de la mejor manera.

Symbole

Symbole

Symbols

СИМВОЛЫ

Símbolos

 <p>Allgemeinchirurgie Chirurgia ogólna General Surgery Общая хирургия Cirugía general</p>	 <p>Herzchirurgie Kardiochirurgia Cardiac Surgery Кардиохирургия Cirugía cardiovascular</p>	 <p>Kinderchirurgie Chirurgia dziecięca Pediatric Surgery Детская хирургия Cirugía pediátrica</p>	 <p>Orthopädie und Unfallchirurgie Ortopedia i chirurgia urazowa Orthopedics and Traumatology Травматология и ортопедия Ortopedia y cirugía traumatológica</p>	 <p>Plastische und Ästhetische Chirurgie Chirurgia plastyczna i estetyczna Plastic and Aesthetic Surgery Пластическая и эстетическая хирургия Cirugía estética y plástica</p>
 <p>Thoraxchirurgie Torakochirurgia Thoracic Surgery Торакальная хирургия Cirugía torácica</p>	 <p>Viszeralchirurgie Chirurgia wisceralna Visceral Surgery Висцеральная хирургия Cirugía visceral</p>	 <p>Gynäkologie Ginekologia Gynaecology Гинекология Ginecología</p>	 <p>HNO Otolaryngologia ENT Оториноларингология Otorrinolaringología</p>	 <p>Neurochirurgie Neurochirurgia Neuro Surgery Нейрохирургия Neurocirugía</p>
 <p>Dermatologie Dermatologia Dermatology Дерматология Dermatología</p>	 <p>Mund-Kiefer-Gesichtschirurgie Chirurgia twarzowo- szczękowa Oral and maxillofacial Surgery Стоматология и челюст- но-лицевая хирургия Cirugía oral y maxilofacial</p>	 <p>Urologie Urologia Urology Урология Urología</p>	 <p>Gastroenterologie Gastroenterologia Gastroenterology Гастроэнтерология Gastroenterología</p>	 <p>Pulmologie Pulmonologia Pneumology Пульмонология Neumología</p>

	<p>Handgriffe und Elektroden Uchwyty i elektrody Handles and electrodes Держатели электродов и электроды Lápices y electrodos</p>	6 – 29
	<p>Kabel, Adapter und Zubehör, Zubehörtester Kable, adaptory i akcesoria, zestaw testowy Cables, adapters and accessories, Accessory tester Кабели, адаптеры и принадлежности, тестер принадлежностей Cables, adaptadores y accesorios, comprobador de accesorios</p>	30 – 43
	<p>Instrumente für Laparoskopie – MetraLOOP®, LapHaken, ErgoLAP, ERGO 300 Instrumenty do laparoskopii – MetraLOOP®, haki, ErgoLAP, ERGO 300 Instruments for laparoscopy – MetraLOOP®, Lap. hook, ErgoLAP, ERGO 300 Инструменты для лапароскопии – MetraLOOP®, лап. крючок, ErgoLAP, ERGO 300 Instrumentos para laparoscopia – MetraLOOP®, Gancho lap, ErgoLAP, ERGO 300</p>	44 – 71
	<p>Pinzetten Szczypce Forceps Пинцеты Pinzas</p>	72 – 97
	<p>BiZZER® – Bipolare Schere BiZZER® – Nożyczki bipolarne BiZZER® – Bipolar scissors BiZZER® – Биполярные ножницы BiZZER® – Tijeras bipolares</p>	98 – 103
	<p>LIGATION – Gefäßversiegelung LIGACJA – zamykanie naczyń LIGATION – Vessel sealing LIGATION – Лигирование сосудов LIGATION – Sellado de vasos</p>	104 – 123
	<p>Argon assistierte Elektrochirurgie Elektrochirurgia wspomagana argonem Argon-assisted electrocautery Аргонплазменная электрохирургия Electrocauterio asistida con argón</p>	124 – 133
	<p>Neutralelektroden Elektrody neutralne Neutral electrodes Нейтральные электроды Electrodos neutros</p>	134 – 147
	<p>ARC System und Zubehörteile System ARC i akcesoria ARC system and accessories Система ARC и принадлежности Sistema ARC y accesorios</p>	148 – 161
	<p>ARC CART – Gerätewagen und Anbauteile ARC CART – wózek na urządzenia i wyposażenie ARC CART – Equipment trolley and attachments ARC CART – тележка для оборудования и принадлежностей ARC CART – Carro de equipo y piezas de montaje</p>	162 – 173
	<p>SHE SHA Rauchgasabsaugung System odsysania dymu SHE SHA SHE SHA smoke evacuation SHE SHA Система эвакуации дыма Aspiración de humo SHE SHA</p>	174 – 179
	<p>Sets Zestawy Sets Наборы Sets</p>	180 – 203

COMFORT-SYSTEM

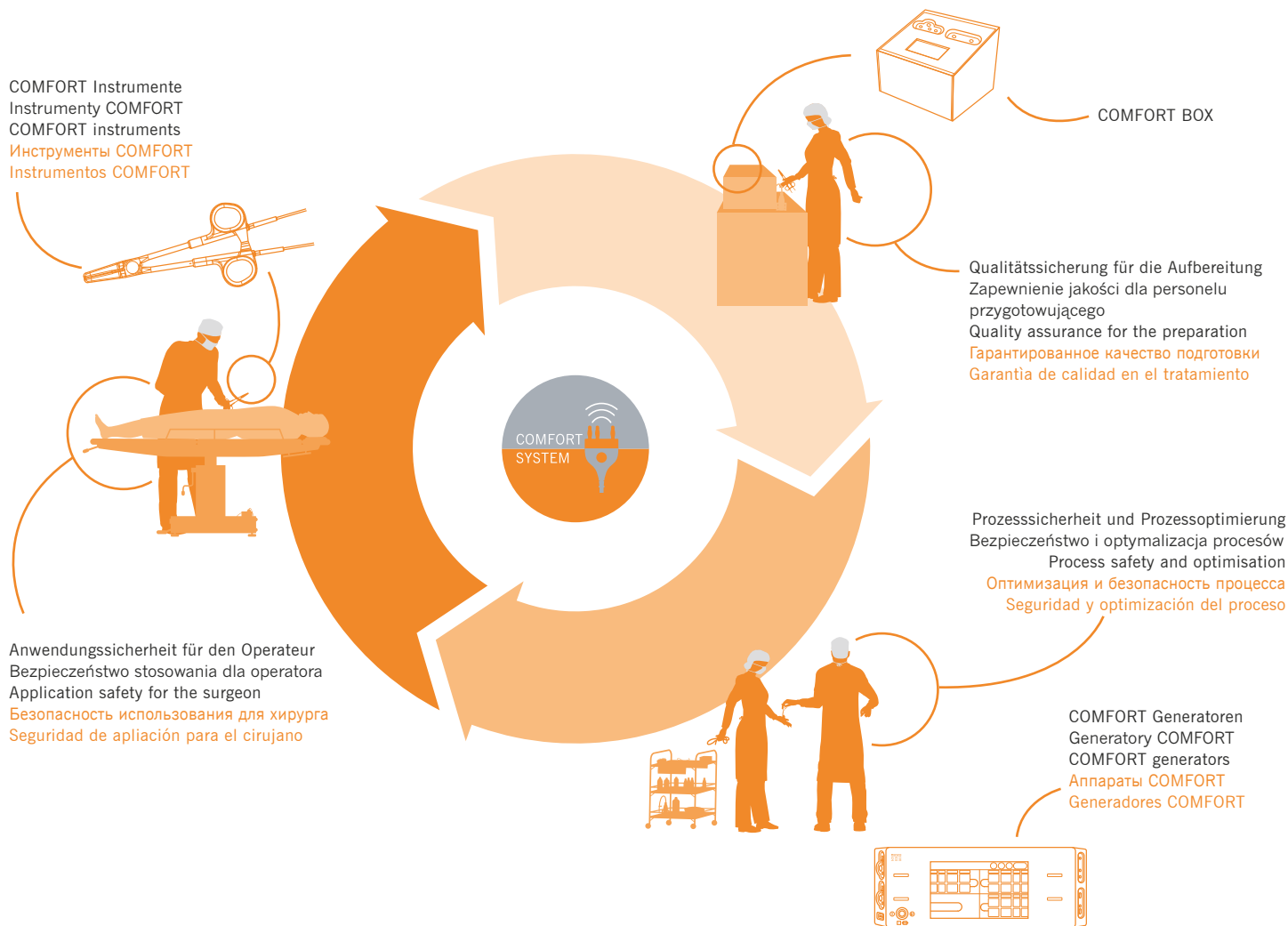
Weltweit die erste universelle und interdisziplinäre Instrumentenerkennung

Pierwsze na świecie uniwersalne i interdyscyplinarne rozpoznawanie instrumentów

The first universal and interdisciplinary instrument detection system in the world

Первая в мире универсальная и междисциплинарная система определения инструмента

Optimización de procesos para todos los instrumentos y áreas de aplicación



Nutzen Sie die COMFORT BOX zur Überprüfung der Aufbereitungszyklen intelligenter Instrumente
Korzystaj z COMFORT BOX w celu weryfikacji ilości cykli sterylizacji inteligentnych instrumentów
Use the COMFORT BOX for checking the preparation cycles of intelligent instruments.

Используйте COMFORT BOX для проверки циклов подготовки интеллектуальных инструментов
Utilice la COMFORT BOX para verificar los ciclos de preparación de instrumentos inteligentes

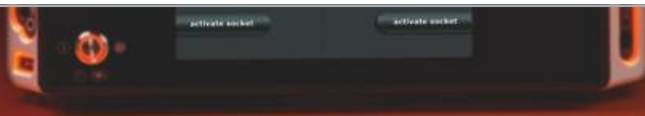
	1 x COMFORT BOX 5 x REF 215-145 (4 mm) 5 x REF 101-140	050-240
	1 x COMFORT BOX 5 x REF 218-145 (2.4 mm) 5 x REF 101-140	050-241
	COMFORT BOX	050-242

BIZZER®



100-103

LIGATION – ERGO 310D



110-113

EASY

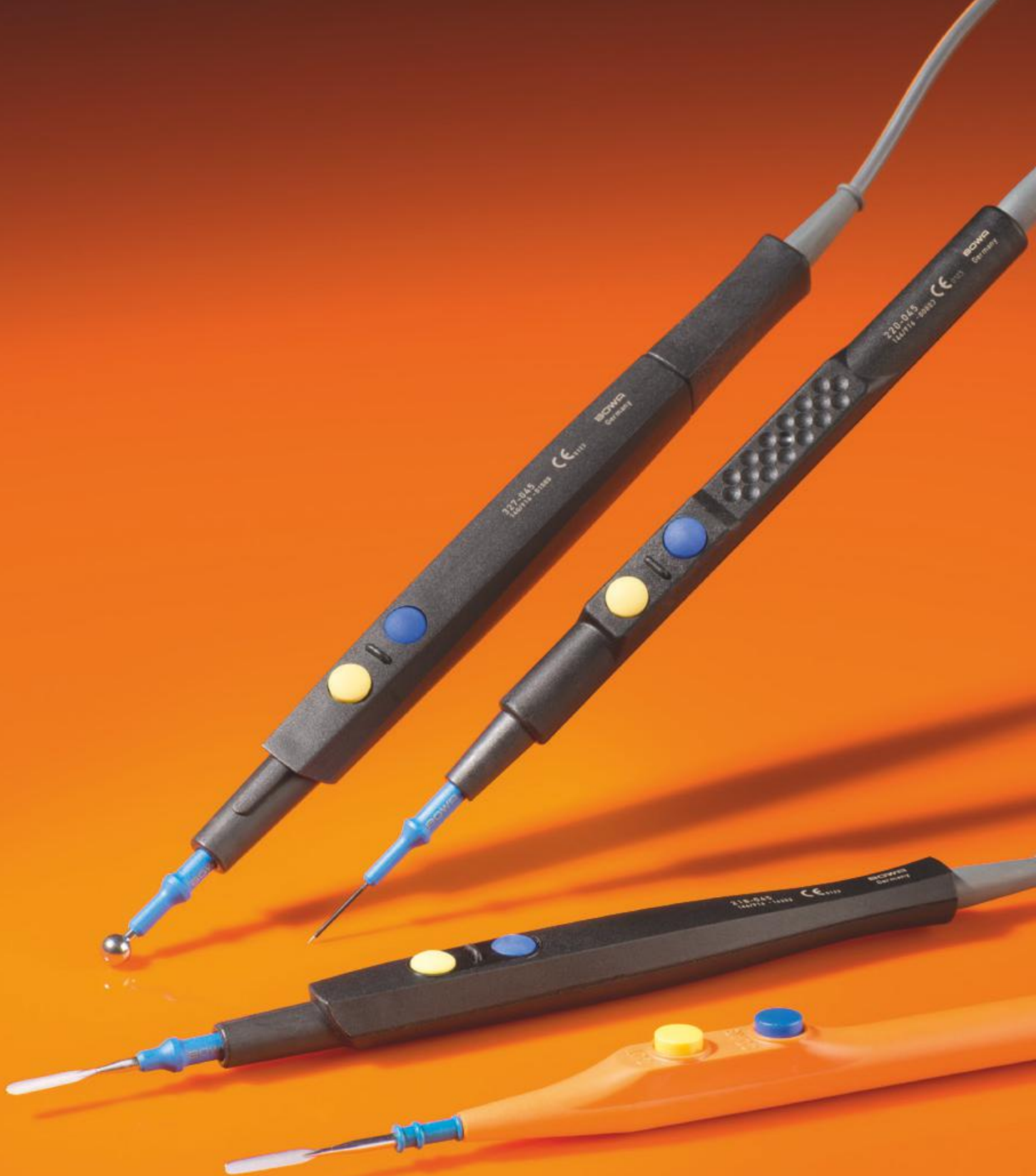


136-143

1 Handgriffe und Elektroden
 Uchwyty i elektrody
 Handles and electrodes
 Держатели электродов и электроды
 Lárices y electrodos

<p>1.1 Elektrodenhandgriffe 1.1.1 Elektrodenhandgriffe 1.1.2 Einmal-Handgriffe 1.1.3 Adapter monopolar 1.2 Elektroden 1.2.1 Elektroden 1.2.2 Elektrodenverlängerungen 1.2.3 Elektrodenbehälter 1.2.4 Elektroden mit isoliertem Schaft 1.3 Einmal-Elektroden 1.3.1 NON-Stick Einmal-Elektroden 1.3.2 Einmal-Elektroden 1.3.3 Zubehör 1.4 Arthroskopie-Elektroden</p>	<p>1.1 Uchwyty elektrod 1.1.1 Uchwyty elektrod 1.1.2 Uchwyty jednorazowego użytku 1.1.3 Adaptery monopolarne 1.2 Elektrody 1.2.1 Elektrody 1.2.2 Przedłużki elektrod 1.2.3 Pojemnik na elektrody 1.2.4 Elektrody z izolowanym trzonkiem 1.3 Elektrody jednorazowego użytku 1.3.1 Elektrody jednorazowe z powłoką nieprzywierającą NON-Stick 1.3.2 Elektrody jednorazowego użytku 1.3.3 Akcesoria 1.4 Elektrody artroskopowe</p>	<p>1.1 Electrode handles 1.1.1 Electrode handles 1.1.2 Disposable pencils 1.1.3 Adaptors monopolar 1.2 Electrodes 1.2.1 Electrodes 1.2.2 Electrode extensions 1.2.3 Electrode container 1.2.4 Electrodes with insulated shaft 1.3 Disposable electrodes 1.3.1 NON-Stick Disposable electrodes 1.3.2 Disposable electrodes 1.3.3 Accessories 1.4 Arthroscopic electrodes</p>
<p>1.1 Держатели электродов 1.1.1 Держатели электродов 1.1.2 Одноразовые держатели электродов 1.1.3 Монополярные адаптеры 1.2 Электроды 1.2.1 Электроды 1.2.2 Удлинитель электродов 1.2.3 Контейнеры для электродов 1.2.4 Электроды с изолированным стержнем 1.3 Одноразовые электроды 1.3.1 Одноразовые электроды NON-Stick 1.3.2 Одноразовые электроды 1.3.3 Принадлежности 1.4 Артроскопические электроды</p>	<p>1.1 Mangos porta electrodos 1.1.1 Mangos porta electrodos 1.1.2 Mangos porta electrodos desechables 1.1.3 Adaptadores monopolares 1.2 Electrodo 1.2.1 Electrodo 1.2.2 Alargamiento para electrodos 1.2.3 Recipiente para electrodos 1.2.4 Electrodo con asta aislada 1.3 Electrodo desechable 1.3.1 NON-Stick Electrodo desechable 1.3.2 Electrodo desechable 1.3.3 Accesorios 1.4 Electrodo de artroscopia</p>	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden. Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen. Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden. Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden. Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min. Wszystkie instrumenty jednokrotnego użytku nie są przeznaczone do powtórnego wykorzystania. Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku. BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie. Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min. All single-use products are not intended for multiple usage. Commercially available agents can be used for general wiping and disinfection. BOWA can accept no liability for improper cleaning, sterilisation and use. The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

1

1.1 Elektrodenhandgriffe
Uchwyty elektrod
Electrode handles
Держатели электродов
Mangos porta electrodos

Für SHE SHA Rauchgasabsaugung
Do systemu odsysania dymu SHE SHA
For SHE SHA Smoke Evacuation System
Для SHE SHA системы эвакуации дыма
Para SHE SHA Aspirador de humos quirúrgicos



2.4 / 4 mm



Spannungssicherheit bis 6000 Vp
Ochrona przed napięciem do 6000 Vp
Voltage safety up to 6000 Vp
Безопасность напряжения до 6000 Вп
Seguridad de tensión hasta 6000 Vp

Sichere Identifikation und Nachverfolgung
Bezpieczna identyfikacja
Safe identification and tracking
Надежная идентификация и отслеживание
Identificación segura y rastreo

Blinde Orientierung dank Mittelsteg
Intuicyjna orientacja dzięki wypustce
Intuitive orientation due to the raised centre
Рельеф в центре для ориентации «вслепую»
Orientación a ciegas por el puente central

6-Kant-Codierung
6-kątne zabezpieczenie przed obrotem
Hexagon coding
Шестигранное кодирование
Codificación hexagonal



134°C
Autoclave
273°F

Knickschutz
Osłona końcówki kabla
Bend protection
Защита от перегиба
Protección contra doblezes

Einwandfreie Hygiene
Higiena bez zarzutów
Perfect hygiene
Идеальная гигиена
Higiene impecable

Kabel mit orangefarbenem
Sicherheitsstreifen
Kabel z pomarańczowym paskiem
bezpieczeństwa
Cable with orange safety stripe
Кабель с оранжевой полосой безопасности
Cable con raya de seguridad en naranja

Extreme Langlebigkeit
Ekstremalna wytrzymałość
Highly durable
Высокая прочность
Alta durabilidad

! Hochwertige Haptik
Wyjątkowy kontakt
High quality haptics
Высококачественный контакт
Háptica de alta calidad



Empfohlene Modi bei BOWA ARC 400
Tryby rekomendowane dla BOWA ARC 400
Recommended modes for the BOWA ARC 400
Рекомендованные режимы для BOWA ARC 400
Modos recomendados con BOWA ARC 400



Spray



CUT



COAG

1.1.1 Elektrodenhandgriffe
 Uchwyty elektrod
 Electrode handles
 Держатели электродов
 Mangos porta electrodos



6000V_p/Bn



gold product design award



reddot winner



good design award



2.4 mm

4 mm



BOWA
 Erbe International
 Martin International
 Valleylab
 Conmed

327-045
 (4.5 m)

322-045
 (4.5 m)

COMFORT



-

-



∅ 8 mm

BOWA
 Erbe International
 Martin International
 Valleylab
 Conmed

-

-



∅ 5 mm

Erbe VIO / ICC / ACC

-

110-045
 (4.5 m)



∅ 4 mm

Erbe T-Serie

-

112-045
 (4.5 m)



12.5 mm
 8 mm
 4 mm

Martin

-

227-045
 (4.5 m)

ErgoPEN		JackKNIFE®			
					
2.4 mm	4 mm	2.4 mm	4 mm	2.4 mm	4 mm
218-045 (4.5 m)	215-045 (4.5 m)	220-045 (4.5 m)	220-145 (4.5 m)	-	-
218-145 (4.5 m)	215-145 (4.5 m)	-	-	-	-
-	-	-	-	335-030 (4.5 m)	330-030 (4.5 m)
105-045 (4.5 m)	104-045 (4.5 m)	120-045 (4.5 m)	120-145 (4.5 m)	-	-
-	-	-	-	-	100-016 (4.5 m)
-	214-045 (4.5 m)	-	220-245 (4.5 m)	219-030 (4.5 m)	210-030 (4.5 m)

1.1.2 Einmal-Handgriffe
 Uchwyty jednorazowego użytku
 Disposable pencils
 Одноразовые держатели электродов
 Mangos porta electrodos desechables



<div style="border: 1px solid orange; padding: 2px; display: inline-block;">6000V_p/Bn</div>				
Elektrodenhandgriff mit Wippschalter, 3 m Kabel und Standard-Messerelektrode 50 Stk. / Karton Steril verpackt	Uchwyt elektrod z przełącznikiem kołyskowym, kablem 3 m i standardową elektrodą nożową 50 szt. / opakowanie Pakowany sterylnie	Electrode handle with "rocker switch", 3 m cable and standard blade electrode 50 pcs. / carton Sterile packing	Одноразовый держатель электродов с электродом-ножом, активация перекидным переключателем, кабель 3 м, в стерильной упаковке / 50 шт.	Mango porta electrodos con pulsador tipo báscula, cable 3 m y electrodo cuchillo estándar 50 uds. / caja Embalaje estéril
801-030 (3 m)		BOWA Erbe International Martin International Valleylab Conmed		

<div style="border: 1px solid orange; padding: 2px; display: inline-block;">6000V_p/Bn</div>				
Elektrodenhandgriff mit 2 Tasten, 3 m Kabel und Standard-Messerelektrode 50 Stk. / Karton Steril verpackt	Uchwyt elektrod z dwoma przyciskami, kablem 3 m i standardową elektrodą nożową 50 szt. / opakowanie Pakowany sterylnie	Electrode handle with 2 "click buttons", 3 m cable and standard blade electrode 50 pcs. / carton Sterile packing	Одноразовый держатель электродов с электродом-ножом, 2-кнопочная активация, кабель 3 м, в стерильной упаковке / 50 шт.	Mango porta electrodos con dos pulsadores digitales, cable 3 m y electrodo cuchillo estándar 50 uds. / caja Embalaje estéril
802-030 (3 m)		BOWA Erbe International Martin International Valleylab Conmed		

<div style="border: 1px solid orange; padding: 2px; display: inline-block;">5000V_p/Bn</div>				
Elektrodenhandgriff mit 2 Tasten, 5 m Kabel und Standard-Messerelektrode, Ø 2,4 mm 50 Stk. / Karton Steril verpackt	Uchwyt elektrod z dwoma przyciskami, kablem 5 m i standardową elektrodą nożową Ø 2,4 mm 50 szt. / opakowanie Pakowany sterylnie	Electrode handle with 2 "click buttons", 5 m cable and standard blade electrode, Ø 2,4 mm 50 pcs. / carton Sterile packing	Одноразовый держатель электродов с электродом-ножом, 2-кнопочная активация, кабель 5 м, Ø 2,4 мм в стерильной упаковке / 50 шт.	Mango porta electrodos con dos pulsadores digitales, cable 5 m y electrodo cuchillo estándar, Ø 2,4 mm 50 uds. / caja Embalaje estéril
802-035 (5 m)		BOWA / Valleylab 3-Pin		



<p>22 mm</p> <p>6000V_p/Bп</p> <p> STERILE</p>	<p>SHE SHA Handgriff, l�ngenverstellbar, 2 Tasten, Messer, 3 m, Einweg, steril (10 Stk.) inkl. Holster Uchwyt SHE SHA, 2 przyciski, n�z, 3 m, jednorazowego u�ytku, sterylny (10 szt.) zawiera futera� SHE SHA handle, adjustable length, 2 buttons, knife electrode, 3 m, single-use, sterile (10 pcs.) incl. holster SHE SHA одноразовый держатель электродов с электродом-ножом, регулируемый, 2-кнопочная активация, кабель 3 м, в стерильной упаковке / 10 шт. в т.ч. чехол L�piz SHE SHA, ajustable en longitud, 2 botones, cuchilla, 3 m, desechable, esterilizado (10 uds.) incl. funda</p>	<p>802-033 (3 m)</p> <p>BOWA Erbe International Martin International Valleylab Conmed</p>
<p>22 mm</p> <p>6000V_p/Bп</p> <p> STERILE</p>	<p>SHE SHA Handgriff, 2 Tasten, Messer, 3 m, Einweg, steril (10 Stk.) inkl. Holster Uchwyt SHE SHA, 2 przyciski, n�z, 3 m, jednorazowego u�ytku, sterylny (10 szt.) zawiera futera� SHE SHA handle, 2 buttons, knife electrode, 3 m, single-use, sterile (10 pcs.) incl. holster SHE SHA одноразовый держатель электродов с электродом-ножом, 2-кнопочная активация, кабель 3 м, в стерильной упаковке / 10 шт. в т.ч. чехол L�piz SHE SHA, 2 botones, cuchilla, 3 m, desechable, esterilizado (10 uds.) incl. funda</p>	<p>802-032 (3 m)</p> <p>BOWA Erbe International Martin International Valleylab Conmed</p>

1.2.1 Elektroden
 Elektrody
 Electrodes
 Электроды
 Electrodos

134°C
 Autoclave
 273°F

6000V_p/Вп

4 / 2.4 mm

6-Kant-Codierung
 6-kałne zabezpieczenie
 przed obrotem
 Hexagon coding
 Шестигранная кодировка
 Codificación hexagonal




Messer, Kugel, Nadel, Drahtschlinge
 Nóż, kulka, igła, pętla
 Blade, ball, needle, wire loop
 Нож, шарик, игла, проволочная петля
 Cuchillo, bola, aguja, asa de alambre

Hitzebeständige Sicherheits-Isolation
 Izolacja odporna na ciepło
 Heat-resistant safety insulation
 Высокотемпературная безопасная изоляция
 Aislamiento de seguridad, resistente al calor

Scharfe Wolfram Mikro-Elektrode
 Ostra mikroelektroda wolframowa
 Sharp tungsten micro electrode
 Острый вольфрамовый микроэлектрод
 Microelectrodo agudo de tungsteno


Minimale Wärmeausbreitung
 Minimalne oddziaływanie termiczne
 Minimal thermal spread
 Минимальное распространение тепла
 Propagación térmica mínima

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400

-  Spray
-  CUT
-  COAG

Verschiedene Ausführungen
 Różne modele
 Various designs
 Различное исполнение
 Varios tipos



6000V _p /Вп		 Ø 4 mm	 BOWA Ø 2.4 mm reusable	
		500-007	530-207	Messer / 5 Stk. Nóż / 5 szt. Blade / 5 pcs. Нож / 5 штук Cuchillo / 5 uds.
1:1				
		500-127	530-127	Messer, fein / 5 Stk. Nóż, cienki / 5 szt. Blade, thin / 5 pcs. Тонкий нож / 5 штук Cuchillo, fino / 5 uds.
1:1				
	◇	500-009	530-009	Messer rautenförmig / 5 Stk. Nóż, rombowy / 5 szt. Knife, rhombic / 5 pcs. Ромбовидный нож / 5 штук Cuchillo, rómbico / 5 uds.
1:1				
	◇	500-008	530-008	Messer, rautenförmig, abgewinkelt / 5 Stk. Nóż, rombowy, zagięty / 5 szt. Knife, rhombic, angled / 5 pcs. Ромбовидный изогнутый нож / 5 штук Cuchillo, rómbico, acodado / 5 uds.
1:1				
	●	500-126	530-126	Spatel / 5 Stk. Szpatułka / 5 szt. Lancet / 5 pcs. Шпатель / 5 штук Espátula / 5 uds.
1:1				
	●	500-125	530-125	Spatel, abgewinkelt / 5 Stk. Szpatułka, zagięta / 5 szt. Lancet, angled / 5 pcs. Шпатель изогнутый / 5 штук Espátula, acodada / 5 uds.
1:1				




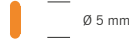



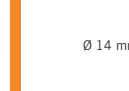







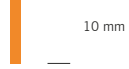


6000V _p /Вп				
		500-019	-	Kugel / 5 Stk. Kulka / 5 szt. Ball / 5 pcs. Шарик / 5 штук Bola / 5 uds.
		500-129	-	Kugel, abgewinkelt / 5 Stk. Kulka, zagięta / 5 szt. Ball, angled / 5 pcs. Шарик изогнутый / 5 штук Bola, acodada / 5 uds.
		500-020	530-020	Kugel / 5 Stk. Kulka / 5 szt. Ball / 5 pcs. Шарик / 5 штук Bola / 5 uds.
		500-130	530-130	Kugel, abgewinkelt / 5 Stk. Kulka, zagięta / 5 szt. Ball, angled / 5 pcs. Шарик изогнутый / 5 штук Bola, acodada / 5 uds.
		500-021	530-021	Kugel / 5 Stk. Kulka / 5 szt. Ball / 5 pcs. Шарик / 5 штук Bola / 5 uds.
		500-131	-	Kugel, abgewinkelt / 5 Stk. Kulka, zagięta / 5 szt. Ball, angled / 5 pcs. Шарик изогнутый / 5 штук Bola, acodada / 5 uds.
		500-022	530-022	Kugel / 5 Stk. Kulka / 5 szt. Ball / 5 pcs. Шарик / 5 штук Bola / 5 uds.

1.2.1 Elektroden
 Elektrody
 Electrodes
 Электроды
 Electrodos

134°C
 Autoclave
 273°F



6000V _p /Вп		 Ø 4 mm	 BOWA Ø 2.4 mm reusable	
 1:1	 Ø 5 mm	500-014	530-014	Drahtschlinge / 5 Stk. Pętla druciana / 5 szt. Wire loop / 5 pcs. Петля проволочная / 5 штук Asa de alambre / 5 uds.
 1:1	 Ø 10 mm	500-015	530-015	Drahtschlinge / 5 Stk. Pętla druciana / 5 szt. Wire loop / 5 pcs. Петля проволочная / 5 штук Asa de alambre / 5 uds.
 1:1	 Ø 14 mm	500-016	530-016	Drahtschlinge / 5 Stk. Pętla druciana / 5 szt. Wire loop / 5 pcs. Петля проволочная / 5 штук Asa de alambre / 5 uds.
 1:1	 Ø 10 mm	500-017	530-017	Bandschlinge / 5 Stk. Pętla taśmowa płaska / 5 szt. Ribbon loop / 5 pcs. Петля ленточная / 5 штук Asa de cinta / 5 uds.
 1:1	 Ø 17 mm	500-018	-	Bandschlinge / 5 Stk. Pętla taśmowa płaska / 5 szt. Ribbon loop / 5 pcs. Петля ленточная / 5 штук Asa de cinta / 5 uds.
 1:1	 8 mm	500-023	-	Flächenelektrode, 8 x 10 mm / 1 Stk. Elektroda płaska, 8 x 10 mm / 1 szt. Plate electrode, 8 x 10 mm / 1 pcs. Электрод площадка, 8 x 10 мм / 1 штука Electrodo de placa, 8 x 10 mm / 1 uds.
 1:1	 10 mm	500-024	-	Flächenelektrode, 10 x 15 mm / 1 Stk. Elektroda płaska, 10 x 15 mm / 1 szt. Plate electrode, 10 x 15 mm / 1 pcs. Электрод площадка, 10 x 15 мм / 1 штука Electrodo de placa, 10 x 15 mm / 1 uds.

1.2.2 Elektrodenverlängerungen
 Przedłużki elektrod
 Electrode extensions
 Удлинитель электродов
 Alargamiento para electrodos

134°C
 Autoclave
 273°F



500-150



530-150





530-070

1.2.3 Elektrodenbehälter
 Pojemnik na elektrody
 Electrode container
 Контейнер с электродами
 Recipiente para electrodos

134°C
 Autoclave
 273°F



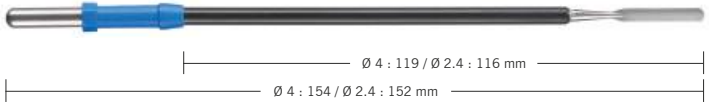
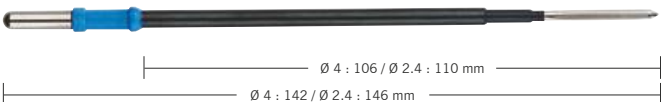
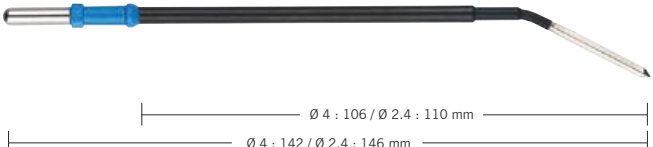
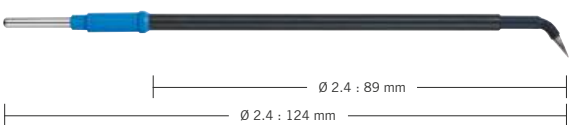
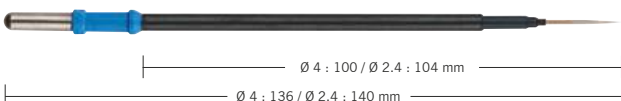
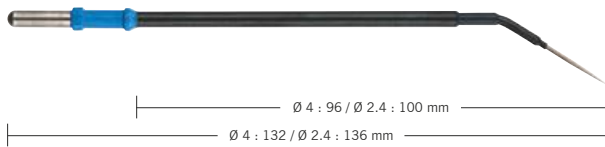


<p>* 1 Stk. 1 szt. 1 pc. 1 шт. 1 pz.</p>  <p>Ø 4 mm</p>	<p>500-000</p>	<table border="1"> <tbody> <tr><td>500-007*</td></tr> <tr><td>500-009*</td></tr> <tr><td>500-008*</td></tr> <tr><td>500-126*</td></tr> <tr><td>500-011*</td></tr> <tr><td>500-022*</td></tr> <tr><td>500-021*</td></tr> <tr><td>500-015*</td></tr> <tr><td>500-014*</td></tr> <tr><td>500-018*</td></tr> <tr><td>500-017*</td></tr> <tr><td>500-023*</td></tr> </tbody> </table> <p>Elektrodenbehälter komplett mit Einsatz, Deckel und 12 Standardelektroden, Schaft 4 mm Ø Pojemnik na elektrody z zamknięciem, podstawką i zestawem 12 standardowych elektrod, trzonek Ø 4 mm Electrode container with lid, rack and 12 standard electrodes, shaft 4 mm Ø Контейнер с крышкой, подставкой и 12 стандартными электродами, коннектор 4 мм Ø Recipiente completo con soporte, tapa y 12 electrodos estándar, asta 4 mm Ø</p>	500-007*	500-009*	500-008*	500-126*	500-011*	500-022*	500-021*	500-015*	500-014*	500-018*	500-017*	500-023*
500-007*														
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500-015*														
500-014*														
500-018*														
500-017*														
500-023*														
<p>* 1 Stk. 1 szt. 1 pc. 1 шт. 1 pz.</p>  <p>Ø 2.4 mm</p>	<p>530-000</p>	<table border="1"> <tbody> <tr><td>530-207*</td></tr> <tr><td>530-009*</td></tr> <tr><td>530-008*</td></tr> <tr><td>530-126*</td></tr> <tr><td>530-125*</td></tr> <tr><td>530-211*</td></tr> <tr><td>530-124*</td></tr> <tr><td>530-022*</td></tr> <tr><td>530-021*</td></tr> <tr><td>530-020*</td></tr> <tr><td>530-015*</td></tr> <tr><td>530-017*</td></tr> </tbody> </table> <p>Elektrodenbehälter komplett mit Einsatz, Deckel und 12 Standardelektroden, Schaft 2.4 mm Ø Pojemnik na elektrody z zamknięciem, podstawką i zestawem 12 standardowych elektrod, trzonek Ø 2.4 mm Electrode container with lid, rack and 12 standard electrodes, shaft 2.4 mm Ø Контейнер с крышкой, подставкой и 12 стандартными электродами, коннектор 2.4 мм Ø Recipiente completo con soporte, tapa y 12 electrodos estándar, asta 2.4 mm Ø</p>	530-207*	530-009*	530-008*	530-126*	530-125*	530-211*	530-124*	530-022*	530-021*	530-020*	530-015*	530-017*
530-207*														
530-009*														
530-008*														
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530-125*														
530-211*														
530-124*														
530-022*														
530-021*														
530-020*														
530-015*														
530-017*														

1.2.4 Elektroden mit isoliertem Schaft
 Elektrody z izolowanym trzonkiem
 Electrodes with insulated shaft
 Электроды с изолированным стержнем
 Electrodoos con asta aislada

134°C
 Autoclave
 273°F



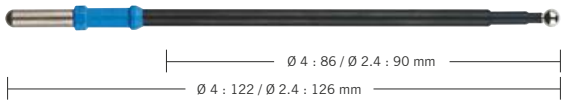
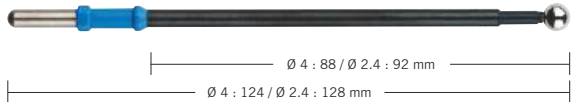
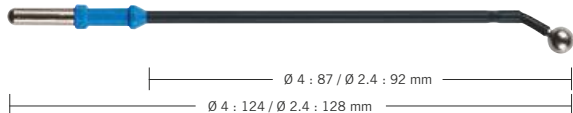
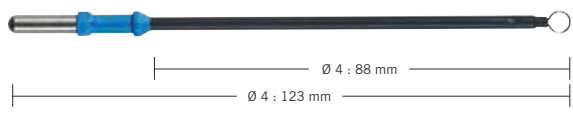
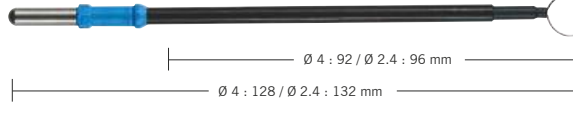


	 Ø 4 mm	 BOWA Ø 2.4 mm reusable	
 <p>Ø 4 : 119 / Ø 2.4 : 116 mm Ø 4 : 154 / Ø 2.4 : 152 mm</p>	520-028	530-028	Messer Nóż Knife Нож Cuchillo
 <p>Ø 4 : 106 / Ø 2.4 : 110 mm Ø 4 : 142 / Ø 2.4 : 146 mm</p>	520-124	530-224	Messer, rautenförmig Nóż, rombowy Knife, rhombic Нож ромбовидный Cuchillo, rómbico
 <p>Ø 4 : 106 / Ø 2.4 : 110 mm Ø 4 : 142 / Ø 2.4 : 146 mm</p>	520-123	530-123	Messer, rautenförmig Nóż, rombowy Knife, rhombic Нож ромбовидный изогнутый Cuchillo, rómbico
 <p>Ø 2.4 : 89 mm Ø 2.4 : 124 mm</p>	-	530-225	Für HNO Do otolaryngologii For otolaryngology Для ЛОР Para la otorrinolaringología
 <p>Ø 4 : 100 / Ø 2.4 : 104 mm Ø 4 : 136 / Ø 2.4 : 140 mm</p>	520-027	530-027	Nadel Igła Needle Игла Aguja
 <p>Ø 4 : 96 / Ø 2.4 : 100 mm Ø 4 : 132 / Ø 2.4 : 136 mm</p>	520-122	530-122	Nadel, abgewinkelt Igła, zagięta Needle, angled Изогнутая игла Aguja, acodada



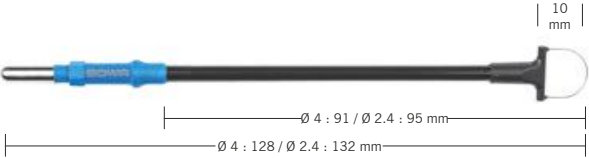
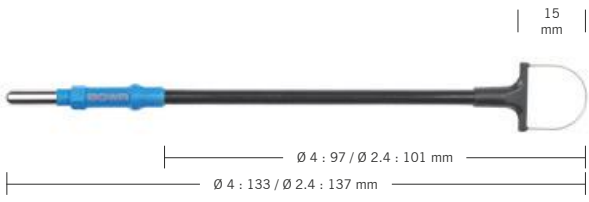

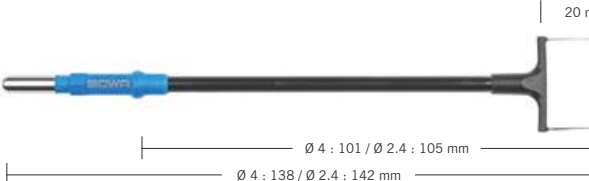

1.2.4 Elektroden mit isoliertem Schaft
 Elektrody z izolowanym trzonkiem
 Electrodes with insulated shaft
 Электроды с изолированным стержнем
 Electrodoos con asta aislada

134°C
 Autoclave
 273°F



	 Ø 4 mm	 BOWA Ø 2.4 mm reusable	
 <p>Ø 4 : 86 / Ø 2.4 : 90 mm Ø 4 : 122 / Ø 2.4 : 126 mm</p> <p>● — Ø 4 mm</p>	520-029	530-029	Kugel, Ø 4 mm Kulka, Ø 4 mm Ball, Ø 4 mm Шарик Ø 4 мм Bola, Ø 4 mm
 <p>Ø 4 : 88 / Ø 2.4 : 92 mm Ø 4 : 124 / Ø 2.4 : 128 mm</p> <p>● — Ø 6 mm</p>	520-030	530-030	Kugel, Ø 6 mm Kulka, Ø 6 mm Ball, Ø 6 mm Шарик Ø 6 мм Bola, Ø 6 mm
 <p>Ø 4 : 87 / Ø 2.4 : 92 mm Ø 4 : 124 / Ø 2.4 : 128 mm</p> <p>● — Ø 6 mm</p>	520-035	530-035	Kugel, abgewinkelt, Ø 6 mm Kulka, zagięta, Ø 6 mm Ball, angled, Ø 6 mm Шарик, изогнутый Ø 6 мм Bola, acodada, Ø 6 mm
 <p>Ø 4 : 88 mm Ø 4 : 123 mm</p> <p>● — Ø 5 mm</p>	520-031	-	Drahtschlinge, 0.35 mm Pętla druciana, 0.35 mm Wire loop, 0.35 mm Петля проволочная, 0.35 мм Asa de alambre, 0.35 mm
 <p>Ø 4 : 92 / Ø 2.4 : 96 mm Ø 4 : 128 / Ø 2.4 : 132 mm</p> <p>● — Ø 10 mm</p>	520-032	530-032	Drahtschlinge, 0.35 mm Pętla druciana, 0.35 mm Wire loop, 0.35 mm Петля проволочная, 0.35 мм Asa de alambre, 0.35 mm



3200 V _p /B _п	 Ø 4 mm	 BOWA Ø 2.4 mm reusable	
	520-134	530-134	
	520-135	530-135	
	520-133	530-133	Schlinge, 0.4 mm Петля, 0.4 mm Loop, 0.4 mm Петля 0.4 мм Asa, 0.4 mm
	520-132	530-132	
	520-136	530-136	

1.3.1 NON-Stick Einmal-Elektroden Elektrody jednorazowe z powłoką nieprzywierającą NON-Stick NON-Stick Disposable electrodes Одноразовые электроды NON-Stick NON-Stick Electrodes desechables



Saubere Elektroden – Sauberer Schnitt – Zeitsparend
Czyste elektrody – Czyste cięcie – Oszczędność czasu
Clean electrodes – Clean cut – Time-saving
Чистые электроды – Чистый разрез – Экономия времени
Electrodo limpio – Corte limpio – Ahorro de tiempo

6000V_p/Вп

Biigsam und belastbar
Elastyczne i sprężyste
Flexible and resilient
Гибкие и надежные
Flexible y resistente

Schneiden oder Dissektion
Cięcie lub koagulacja
Cutting or dissection
Разрез или диссекция
Corte o disección

Einfache Reinigung
Łatwe czyszczenie
Easy to clean
Легко очищать
Fácil de limpiar

Gewebeunabhängig
Niezależne od typu tkanki
Independent of tissue
Независим от вида ткани
Independiente del tejido

Antihftbeschichtung
Powłoka nieprzywierająca
Non-stick coating
Антипригарное покрытие
Revestimiento antiadherente

Verschiedene Ausführungen
Różne modele
Various designs
Различные модели
Varios tipos

2.4 mm

Empfohlene Modi bei BOWA ARC 400
Tryby rekomendowane dla BOWA ARC 400
Recommended modes for the BOWA ARC 400
Рекомендованные режимы для BOWA ARC 400
Modos recomendados con BOWA ARC 400



Spray



CUT



COAG



<p> \varnothing 2.4 mm 71 mm 1:1 </p>	
800-001	
<p> NON-Stick Messerelektrode, steril verpackt / 10 Stk. Elektroda nożowa NON-Stick, pakowana sterylnie / 10 szt. NON-Stick Blade electrode, sterile packing / 10 pcs. Электрод-нож, NON-Stick, стерильная упаковка / 10 штук NON-Stick Electrodo cuchillo, embalaje estéril / 10 uds. </p>	
<p> \varnothing 2.4 mm 71 mm 1:1 </p>	
800-002	
<p> NON-Stick Nadelelektrode, steril verpackt / 10 Stk. Elektroda igłowa NON-Stick, pakowana sterylnie / 10 szt. NON-Stick Needle electrode, sterile packing / 10 pcs. Электрод-игла, NON-Stick, стерильная упаковка / 10 штук NON-Stick Electrodo aguja, embalaje estéril / 10 uds. </p>	
<p> \varnothing 2.4 mm 51 mm 1:1 </p>	<p> \varnothing 4 mm </p>
800-003	
<p> NON-Stick Kugelelektrode, \varnothing 4 mm, steril verpackt / 10 Stk. Elektroda kulkowa NON-Stick, \varnothing 4 mm, pakowana sterylnie / 10 szt. NON-Stick Ball electrode, \varnothing 4 mm, sterile packing / 10 pcs. Электрод-шарик \varnothing 4 мм, NON-Stick, стерильная упаковка / 10 штук NON-Stick Electrodo bola, \varnothing 4 mm, embalaje estéril / 10 uds. </p>	
<p> \varnothing 2.4 mm 152 mm 1:1 </p>	
800-004	
<p> NON-Stick Messerelektrode, lang, steril verpackt / 10 Stk. Wydłużona elektroda nożowa NON-Stick, pakowana sterylnie / 10 szt. NON-Stick Extended blade electrode, sterile packing / 10 pcs. Электрод-нож длинный, NON-Stick, стерильная упаковка / 10 штук NON-Stick Electrodo cuchillo, largo, embalaje estéril / 10 uds. </p>	
<p> \varnothing 2.4 mm 134 mm 1:1 </p>	<p> \varnothing 5 mm </p>
800-005	
<p> NON-Stick Kugelelektrode, lang, \varnothing 5 mm, steril verpackt / 10 Stk. Wydłużona elektroda kulkowa NON-Stick, \varnothing 5 mm, pakowana sterylnie / 10 szt. NON-Stick Extended ball electrode, \varnothing 5 mm, sterile packing / 10 pcs. Электрод-шарик \varnothing 5 мм, длинный, NON-Stick, длинный, стерильная упаковка / 10 штук NON-Stick Electrodo bola, largo, \varnothing 5 mm, embalaje estéril / 10 uds. </p>	

1.3.2 Einmal-Elektroden Elektrody jednorazowego użytku Disposable electrodes Одноразовые электроды Electrodos desechables



<p> \varnothing 2.4 mm 1:1 69 mm 19 mm </p>	
800-007	
<p> Messerelektrode, Schaft 2,4 mm, Einweg, steril (5 Stk.) Elektroda nożowa, trzonek 2.4 mm, jednorazowa, sterylna (5 szt.) Knife electrode, shaft 2.4 mm, single-use, sterile (5 pcs.) Электрод-нож, коннектор 2,4 мм, одноразовый, стерильный, упаковка 5 шт Electrodo cuchillo, diam. 2,4 mm, desechable, estéril (5 uds.) </p>	
<p> \varnothing 2.4 mm 1:1 69 mm 19 mm x 0.8 mm </p>	•
800-011	
<p> Nadelelektrode, Schaft 2,4 mm, Einweg, steril (5 Stk.) Elektroda igłowa, trzonek 2.4 mm, jednorazowa, sterylna (5 szt.) Needle electrode, shaft 2.4 mm, single-use, sterile (5 pcs.) Электрод-игла, коннектор 2,4 мм, одноразовый, стерильный, упаковка 5 шт Electrodo tipo aguja, diam. 2,4 mm, desechable, estéril (5 uds.) </p>	
<p> \varnothing 2.4 mm 1:1 69 mm 31 mm \varnothing 3 mm </p>	• \varnothing 3 mm
800-021	
<p> Kugelelektrode, Schaft 2,4 mm, Einweg, steril (5 Stk.) Elektroda kulkowa, trzonek 2.4 mm, jednorazowa, sterylna (5 szt.) Ball electrode, shaft 2.4 mm, single-use, sterile (5 pcs.) Электрод-шарик, коннектор 2,4 мм, одноразовый, стерильный, упаковка 5 шт Electrodo tipo bola, diam. 2,4 mm, desechable, estéril (5 uds.) </p>	
<p> \varnothing 2.4 mm 1:1 152 mm 115 mm 19 mm </p>	
800-028	
<p> Messerelektrode, 152 mm, Schaft 2,4 mm, Einweg, steril (5 Stk.) Elektroda nożowa, 152 mm, trzonek 2.4 mm, jednorazowa, sterylna (5 szt.) Knife electrode, 152 mm, shaft 2.4 mm, single-use, sterile (5 pcs.) Электрод-нож, 152 мм, коннектор 2,4 мм, одноразовый, стерильный, упаковка 5 шт Electrodo cuchillo, 152 mm, diam. 2,4 mm, desechable, estéril (5 uds.) </p>	
<p> \varnothing 2.4 mm 1:1 136 mm 99 mm \varnothing 5 mm </p>	• \varnothing 5 mm
800-030	
<p> Kugelelektrode, 136 mm, Schaft 2,4 mm, Einweg, steril (10 Stk.) Electr. kulkowa, 136 mm, trzonek 2.4 mm, jednorazowa, sterylna (10 szt.) Ball electrode, 136 mm, shaft 2.4 mm, single-use, sterile (10 pcs.) Электрод-шарик, 136 мм, коннектор 2,4 мм, одноразовый, стерильный, упаковка 10 шт Electr. tipo bola, 136 mm, diam. 2,4 mm, desechable, estéril (10 uds.) </p>	
<p> Alle Elektroden mit 6-Kant-Codierung! Wszystkie elektrody posiadają 6-kątne zabezpieczenie przed obrotem! All electrodes with hexagon coding! Все электроды с шестигранной кодировкой! Todos los electrodos con codificación hexagonal! </p>	

1.3.3 Zubehör
 Akcesoria
 Accessories
 Принадлежности
 Accesorios



 <p>1:1</p>	<p>800-000</p>	<p>Tip Cleaner, steril verpackt / 50 Stk. Czyścik elektrod, pakowany sterylnie / 50 szt. Tip Cleaner, sterile packing / 50 pcs. Подушечка для очистки электродов, стерильная упаковка / 50 штук. Tip Cleaner, embalaje estéril / 50 uds.</p>
 <p>1:1</p>	<p>800-006</p>	<p>Sicherheits-Köcher, steril verpackt / 100 Stk. Futerał ochronny, pakowany sterylnie / 100 szt. Safety holster, sterile packing / 100 pcs. Чехол защитный, стерильная упаковка / 100 штук. Funda de protección, embalaje estéril / 100 uds.</p>

1.4 Arthroskopie-Elektroden
 Elektrody artroskopowe
 Arthroscopic electrodes
 Артроскопические электроды
 Electrodo de artroscopia

134°C
 Autoclave
 273°F



Sicher – Ergonomisch
 Bezpieczne – Ergonomiczne
 Ergonomic – Safe
 Эргономично – безопасно
 Ergonómico – Seguro

4250V_p/Вп

Kabel mit orangefarbenem Sicherheitsstreifen
 Kabel z pomarańczowym paskiem bezpieczeństwa
 Cable with orange safety stripe
 Кабель с оранжевой полосой безопасности
 Cable con raya de seguridad en naranja

Elektrode + Kabel = Griff
 Elektroda + kabel = uchwyt
 Electrode + cable = handle
 Электрод + кабель = ручка
 Electrodo + cable = mango

6-Kant-Codierung
 6-kątne zabezpieczenie przed obrotem
 Hexagon coding
 Шестигранная кодировка
 Codificación hexagonal

Peek-Isolation
 Izolacja z PEEK
 Peek insulation
 Изоляция PEEK
 Aislamiento en Peek

Verschiedene Ausführungen
 Różne modele
 Various designs
 Различные модели
 Varios tipos

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



Spray



CUT



COAG



<p>Nadel 90° abgewinkelt Igła, zagięta 90° Needle angled 90° Изогнутая игла 90° Aguja acodada 90°</p>	<p>Nadel 90° abgewinkelt Igła, zagięta 90° Needle angled 90° Изогнутая игла 90° Aguja acodada 90°</p>	<p>Messer 45° gekröpft Nóż, zagięty 45° Knife cranked 45° Изогнутый нож 45° Cuchillo acodado 45°</p>	<p>Tastelektrode 90° abgewinkelt Elektroda klawiszowa, zagięta 90° Keying electrode angled 90° Электрод пальпатор изогнутый 90° Electrodo de palpación, acodada 90°</p>
<p>1:1.5 510-108</p>	<p>1:1.5 510-109</p>	<p>1:1.5 510-110</p>	<p>1:1.5 510-112</p>

<p>Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Штекер со стороны аппарата Enchufe, parte generador</p>	<p>Stecker, Instrumentenseite Wtyczka – strona instrumentu Plug, instrument side Разъём со стороны инструмента Enchufe, parte instrumento</p>	<p>Passend für Gerätetyp Przystosowane do generatorów Fitting generator type Для аппаратов типа Para generadores tipo</p>	<p>REF</p>
		<p>Erbe VIO / ICC / ACC</p>	<p>101-060 (4.5 m)</p>
	<p>6-Kant 6-kątna Hexagon coding Шестигранная нодировка Hexagonal</p>	<p>4 mm Ø Buchse Gniazdo Ø 4 mm 4 mm Ø socket 4 mm Ø разъём Casquillo 4 mm Ø</p>	<p>280-035 (4.5 m)</p>
		<p>BOWA Erbe International Martin International Valleylab Conmed</p>	<p>370-050 (4.5 m)</p>

2 Kabel, Adapter und Zubehör, Zubehörtester
 Kable, adaptery i akcesoria, zestaw testowy
 Cables, adaptors and accessories, Accessory tester
 Кабели, адаптеры и принадлежности, тестер для принадлежностей
 Cables, adaptadores y accesorios, comprobador de accesorios

2 Anschlusskabel 2.1 Anschlusskabel monopolar 2.2 Anschlusskabel bipolar 2.3 COMFORT Anschlusskabel 2.3.1 COMFORT Anschlusskabel monopolar 2.3.2 COMFORT Anschlusskabel bipolar 2.4 Adapter 2.4.1 Adapter monopolar 2.4.2 Adapter BOWA ARC 2.5 Prüfgerät	2 Kable przyłączeniowe 2.1 Kable monopolarne 2.2 Kable bipolarne 2.3 Kable COMFORT 2.3.1 Kable monopolarne COMFORT 2.3.2 Kable bipolarne COMFORT 2.4 Adaptery 2.4.1 Adaptery monopolarne 2.4.2 Adaptery BOWA ARC 2.5 Zestaw testowy	2 Connecting cables 2.1 Connecting cables monopolar 2.2 Connecting cables bipolar 2.3 COMFORT Connecting cables 2.3.1 COMFORT Connecting cables monopolar 2.3.2 COMFORT Connecting cables bipolar 2.4 Adaptors 2.4.1 Adaptors monopolar 2.4.2 Adaptors BOWA ARC 2.5 Testing device
2 Соединительные кабели 2.1 Монополярные соединительные кабели 2.2 Биполярные соединительные кабели 2.3 Соединительные кабели COMFORT 2.3.1 Монополярные соединительные кабели COMFORT 2.3.2 Биполярные соединительные кабели COMFORT 2.4 Адаптеры 2.4.1 Монополярные адаптеры 2.4.2 Адаптеры BOWA ARC 2.5 Тестирующее устройство	2 Cables de conexión 2.1 Cables de conexión monopolares 2.2 Cables de conexión bipolares 2.3 COMFORT Cables de conexión 2.3.1 COMFORT Cables de conexión monopolares 2.3.2 COMFORT Cables de conexión bipolares 2.4 Adaptadores 2.4.1 Adaptadores monopolares 2.4.2 Adaptadores BOWA ARC 2.5 Comprobador	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE



gold product
design award
2010



reddot
winner
2010



good design
award
2010



Mehrfach preisgekröntes Design
Wielokrotnie nagradzany design
Multiple award-winning design
Дизайн получивший несколько наград
Diseño galardonado con diversos premios

Sichere Identifikation und einfache Ersatzbeschaffung
Bezpieczna identyfikacja i łatwe pozyskiwanie części
zamiennych
Safe identification and easy procurement of spare parts
Безопасная идентификация и лёгкая замена
Identificación segura y fácil adquisición de recambios

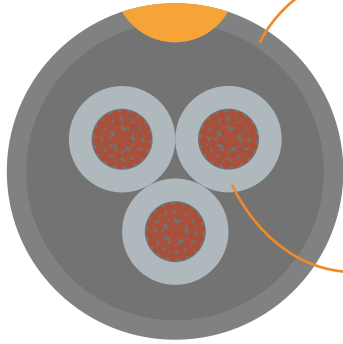
Gleichbleibend sicheres Steckverhalten
Niezmiennie bezpieczne podłączenie
Consistently safe plug-in behaviour
Безопасное и стабильное соединение
Conexión estable y segura

Spannungssicherheit bis 6000 Vp
Ochrona przed napięciem do 6000 Vp
Voltage safety up to 6000 Vp
Безопасно для напряжения до 6000 Вп
Seguridad de tensión hasta 6000 Vp

Knickschutz
Zabezpieczenie przed
zagięciem
Bend protection
Защита от перегиба
Protección contra dobleces

Hochflexibles und sicheres Arbeiten
Wysoka elastyczność i bezpieczna praca
Highly flexible and safe working
Высокая гибкость и безопасность в работе
Alta flexibilidad y seguridad en el trabajo

Kabel mit orangefarbenem Sicherheitsstreifen
Kabel z pomarańczowym paskiem
bezpieczeństwa
Cable with orange safety stripe
Кабель с оранжевой полосой безопасности
Cable con raya de seguridad en naranja



Ideale Reinigungseigenschaften
 Idealny do utrzymania w czystości
 Ideal cleaning properties
 Идеальные свойства для очистки
 Propiedades de limpieza idóneas

Korrosionsschutz
 Ochrona antykorozyjna
 Corrosion protection
 Коррозионная защита
 Protección anticorrosión



Extreme Langlebigkeit
 Ekstremalna wytrzymałość
 Highly durable
 Долговечность
 Duración extrema



Besonderer Berührungsschutz
 Specjalna ochrona przed porażeniem
 Special touch protection
 Специальная защита контакта
 Especial protección contra el contacto



Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Режимы рекомендованные BOWA для ARC 400
 Modos recomendados con BOWA ARC 400



Bipolar COAG



Bipolar CUT



GastroCut



Laparoskopie COAG
 Laparoscopia COAG
 Laparoscopy COAG
 Лапароскопическая
 коагуляция
 Laparoscopia COAG






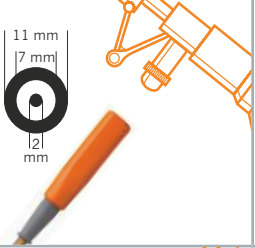

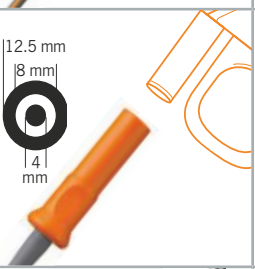



Pinzette
 Szczypce
 Forceps
 Пинцеты
 Pinza

2.1 Anschlusskabel monopolar
 Kable monopolarne
 Connecting cables monopolar
 Монопольные соединительные кабели
 Cables de conexión monopolares

134°C
 Autoclave
 273°F

6000V_p/Вп

		Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato				
						
		4 mm Ø Buchse Gniazdo Ø 4 mm 4 mm Ø socket 4 мм Ø гнездо Casquillo 4 mm Ø	BOWA Erbe International Martin International Valleylab Conmed	Erbe VIO / ICC / ACC	Martin	
Instrumentenseitig / Po stronie instrumentu / At the instrument / Со стороны инструмента / Lado del instrumento	4 mm Instrumente Instrumenty 4 mm 4 mm instruments 4 мм инструменты Instrumentos de 4 mm		280-050 (4.5 m)	360-050 (4.5 m)	101-051 (4.5 m)	-
	Resektoskopie Resektoscopia Resectoscopy Резектоскопия Resectoscopia		405-045 (4.5 m)	375-045 (4.5 m)	106-045 (4.5 m)	-
	Endoskopie Endoscopia Endoscopy Эндоскопия Endoscopia		431-045 (4.5 m)	331-045 (4.5 m)	131-045 (4.5 m)	-
	Endoskopie Endoscopia Endoscopy Эндоскопия Endoscopia		432-045 (4.5 m)	332-045 (4.5 m)	132-045 (4.5 m)	285-050* (4.5 m)
	U.K. Monopolare Pinzetten / Griffe U.K. Monopolare szczypce / uchwyty UK Monopolar forceps / grips Британские монопольные пинцеты / зажимы Pinza monopolar / mangsa U.K.		280-031 (4.5 m)	365-030 (4.5 m)	-	-
		* Nur original Martin-Handgriffe * Wyłącznie do oryginalnych uchwytyw * Only genuine Martin handles		* Только для оригинальных ручек Martin * Solo mangos originales Martin		

2.2 Anschlusskabel bipolar
 Kable bipolarnе
 Connecting cables bipolar
 Биполярные соединительные кабели
 Cables de conexión bipolares

134°C
 Autoclave
 273°F

Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato						
BOWA Erbe International* Martin International Valleylab Conmed		Erbe VIO / ICC / ACC Erbe T-Serie		Erbe VIO International* Martin		
Instrumentenseitig / Po stronie instrumentu / At the instrument / Со стороны инструмента / Lado del instrumento	BOWA-Pinzette Europäischer Flachstecker Szczypce BOWA Europejska wtyczka płaska BOWA forceps European flat connector Пинцеты BOWA Европейский плоский коннектор Pinza BOWA conector europeo plano 550V _p /Вп		351-040 (4.5 m)	101-040 (4 m)	353-040 (4.5 m)	287-040 (4.5 m)
	EU-Pinzette Europäischer Flachstecker Szczypce UE Europejska wtyczka płaska EU forceps European flat connector EBPO пинцеты Европейский плоский коннектор Pinza UE conector europeo plano 550V _p /Вп		351-051 (4.5 m)	101-000 (4 m)	353-050 (4.5 m)	287-050 (4.5 m)
	US-Pinzette Szczypce US US forceps Американские пинцеты Pinza E.E.U.U. 550V _p /Вп		351-045 (4.5 m)	101-045 (4 m)	353-045 (4.5 m)	287-045 (4.5 m)
	BIZZER®, Ethicon Bipolare Scheren Nożyczki bipolarne Bipolar scissors Биполярные ножницы Tijeras bipolares 300V _p /Вп		378-045 (4.5 m)	378-145 (4.5 m)	-	378-245 (4.5 m)
	Lawton Bipolare Schere Nożyczki bipolarne Bipolar scissors Биполярные ножницы Tijera bipolar 300V _p /Вп		401-051 (4.5 m)	401-052 (4.5 m)	-	-
* Abhängig von der jeweiligen Buchsenkonfiguration * Zależy od indywidualnej konfiguracji gniazda * Depending on the respective socket configuration			* В зависимости от соответственной конфигурации разъемов * Según la configuración de enchufes respectiva			

2.2 Anschlusskabel bipolar
 Kable bipolarne
 Connecting cables bipolar
 Биполярные соединительные кабели
 Cables de conexión bipolares

550V_p/Вп

Geräteseitig / Po stronie urządzenia / At the unit /
 Co strony aparata / En el lado del aparato



Valleylab-Geräte mit Autobipolar-Modus!
 Für handgeschaltete Bipolar-Pinzetten.
 Generatory Valleylab z trybem autobipolarnym! Do szczypiec bipo-
 larnych aktywowanych ręcznie
 Valleylab units with autobipolar mode!
 For handswitching bipolar forceps.
 Аппараты Valleylab с автобиполярным режимом!
 Для биполярных пинцетов ручной активации.
 Generadores Valleylab a modo autobipolar!
 Para pinzas bipolares con interruptor manual.

Instrumentenseitig / Po stronie instrumentu / At the instrument / Co strony instrumentu / Lado del instrumento

EU-Pinzette
 Europäischer Flachstecker
 Szczypce UE Europejska wtyczka
 płaska
 EU forceps
 European flat connector
 Европейские пинцеты с плоским
 коннектором
 Pinza europea
 conector europeo plano



355-030 (3 m)

BOWA-Pinzette
 Europäischer Flachstecker
 Szczypce BOWA Europejska
 wtyczka płaska
 BOWA forceps European flat
 connector
 BOWA пинцеты с Европейским
 плоским коннектором
 Pinza BOWA
 conector europeo plano



355-031 (3 m)

2.3.1 COMFORT Anschlusskabel monopolar
 Kable monopolarne
 Connecting cables monopolar
 Монопольные соединительные кабели
 Cables de conexión monopolares














6000V_p/Вп

Geräteseitig / Po stronie urządzenia / At the unit /
 Со стороны аппарата / En el lado del aparato

● —
 ● 31.75 mm
 ● —

COMFORT
 Anschlusskabel monopolar
 Kable monopolarne
 Connecting cables monopolar
 Соединительные монопольные кабели
 Cables de conexión monopolares

Instrumentenseitig / Po stronie instrumentu / At the instrument / Со стороны инструмента / Lado del instrumento	Resektoskopie Resektoskopia Resectoscopy Резектоскопия Resectoscopia  Resektion CUT Resekcja CUT Resection CUT Резекция Разрез Resección CUT	 Wolf / Storz	 106-145 (4.5 m)
	Resektion COAG Resekcja COAG Resection COAG Резекция Коагуляция Resección COAG 	 Storz	 106-245 (4.5 m)
	Endoskopie Endoskopia Endoscopy Эндоскопия Endoscopia  GastroCut Pap  GastroCut Pol	 Olympus	 106-345 (4.5 m)
	 131-145 (4.5 m)		

2.3.2 COMFORT Anschlusskabel bipolar
 Kable bipolarne
 Connecting cables bipolar
 Биполярные соединительные кабели
 Cables de conexión bipolares

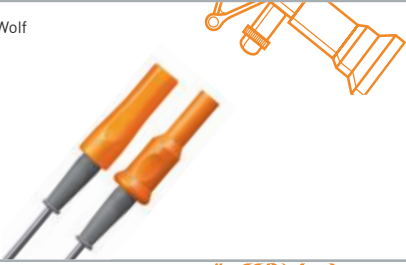








Geräteseitig / Po stronie urządzenia / At the unit /
 Со стороны аппарата / En el lado del aparato



● —
 ● 28.58 mm
 ● —

COMFORT
 Anschlusskabel bipolar
 Kable bipolarne
 Connecting cables bipolar
 Соединительные биполярные кабели
 Cables de conexión bipolares

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Instrumentenseitig / Po stronie instrumentu / At the instrument / Со стороны инструмента / Lado del instrumento</p>	<p>Resektoskopie Resektoskopia Resectoscopy Резектоскопия Resectoscopia</p>	<p>Wolf</p> 	<p>354-145 (4.5 m)</p>
	<p>   Resektion CUT Resekcja CUT Resection CUT Резекция Разрез Resección CUT Resektion COAG Resekcja COAG Resection COAG Резекция Коагуляция Resección COAG </p>	<p>Storz</p> 	<p>352-145 (4.5 m)</p>
	<p>1000V_p/Вп</p>	<p>Olympus</p> 	<p>355-145 (4.5 m)</p>
<p>  Pinzette Szczypce Forceps Пинцеты Pinza </p> <p>550V_p/Вп</p>	<p> BOWA-Pinzette Europäischer Flachstecker Szczypce BOWA Europejska wtyczka płaska BOWA forceps European flat connector Пинцеты BOWA с Европейским плоским коннектором Pinza BOWA conector europeo plano </p>		<p>101-140 (4.5 m)</p>
<p>   Laparoskopie Laparoscopia Laparoscopy Лапароскопия Laparoscopia Laparoskopie Mikro Mikrolaparoscopia Laparoscopy Micro Лапароскопия микро Microlaparoscopia </p> <p>550V_p/Вп</p>	<p>Storz</p> 	<p>352-245 (4.5 m)</p>	

2.4.1 Adapter
Adaptery
Adaptors
Адаптеры
Adaptadores

134°C
Autoclave
273°F

BOWA
Zubehör
Akcesoria
Accessories
Инструменты
Accesorios

Schraube
Śruba
Screw
Винт
Tornillo



6000V_p/Вп

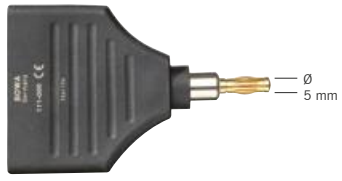

2–4 mm
Variabel
Regulacja
Variable
Регулируемый
Variable

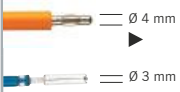


Für BOWA ARC Generatoren
Do generatorów BOWA ARC
For BOWA ARC generators
Для аппаратов BOWA
Para generadores BOWA ARC


Ring
Obroż
Ring
Круг
Anilla
Pull-off



2.4.1 Adapter Adaptory Adaptors Адаптеры Adaptadores



<p>Adapter monopolar Adaptory monopolarne Adaptors monopolar Адаптеры монополярные Adaptadores monopolares</p>			
<p>Für handgeschaltete Griffe und 3-Pin-Stecker Do uchwytów z 3-pinową wtyczką For the connection of fingerswitch handles with 3-pin plug Для держателей электродов ручного управления с 3-контактным разъемом Para la conexión de mangos con pulsadores y enchufe 3-pin</p>		111-000	<p>Für Erbe VIO / ICC / ACC Generatoren Do generatorów Erbe VIO / ICC / ACC For Erbe VIO / ICC / ACC generators Для генераторов ERBE VIO / ICC / ACC Para generadores Erbe VIO / ICC / ACC</p>
		222-000	<p>Für Martin, Generatoren Do generatorów Martin For Martin, generators Для генераторов Martin Para generadores Martin</p>

<p>Für fußgeschaltete Instrumente Do instrumentów sterowanych przełącznikiem nożnym For footswitching instruments Для инструментов управляемых педалью Para instrumentos activados por pedal</p>			
		111-001	<p>Für Erbe VIO / ICC / ACC Generatoren Do generatorów Erbe VIO / ICC / ACC For Erbe VIO / ICC / ACC generators Для генераторов ERBE VIO / ICC / ACC Para generadores Erbe VIO / ICC / ACC</p>
		333-001	<p>BOWA ERBE International Martin International Valleylab Conmed</p>

<p>Adapter bipolar Adaptory bipolarnie Adaptors bipolar Биполярные адаптеры Adaptadores bipolares</p>			
<p>BOWA Bipolare Kabel (Typ Valleylab / Conmed 2-pin) Kable bipolarnie (typ Valleylab / Conmed 2-pin) Bipolar cables (type Valleylab / Conmed 2-pin) Биполярные кабели (типа Valleylab / Conmed 2-контактные) Cables bipolares (tipo Valleylab / Conmed 2-pin)</p>		340-000	<p>Für Erbe Generatoren Do generatorów Erbe For Erbe generators Для генераторов ERBE Para generadores Erbe</p>
<div style="border: 1px solid orange; padding: 5px; display: inline-block;">1000V_p/Вп</div>			

2.4.2 Adapter BOWA ARC
 Adaptery BOWA ARC
 Adaptors BOWA ARC
 Адаптеры BOWA ARC
 Adaptadores BOWA ARC

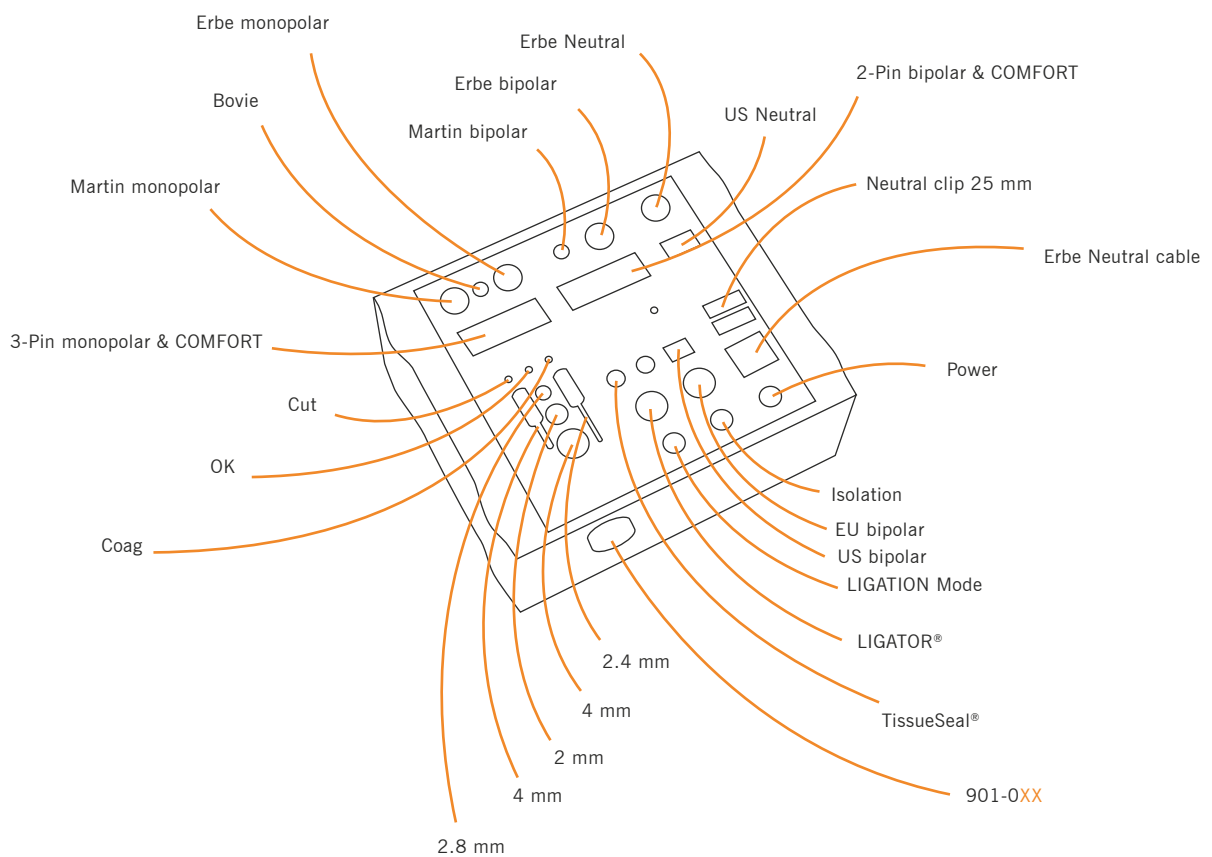
Adapter monopolar Adaptery monopolarne Adaptors monopolar Монополярные адаптеры Adaptadores monopolares			
Für Erbe VIO / ICC / ACC Zubehör Do akcesoriów Erbe VIO / ICC / ACC For Erbe VIO / ICC / ACC Accessories Для принадлежностей ERBE VIO / ICC / ACC Para accesorios Erbe VIO / ICC / ACC		901-250	BOWA ARC 250 / 303 mit Europa Option z opcją Europa with Europe Option с опцией "Europe" con Europa opción
Für Martin Zubehör Do akcesoriów Martin For Martin Accessories Для принадлежностей Martin Para accesorios Martin		901-270	BOWA ARC 350 / 400 BOWA ARC 250 / 303 mit Europa Option z opcją Europa with Europe Option с опцией "Europe" con Europa opción

Adapter bipolar Adaptery bipolarne Adaptors bipolar Биполярные адаптеры Adaptadores bipolares			
Für Erbe VIO / ICC / ACC Zubehör Do akcesoriów Erbe VIO / ICC / ACC For Erbe VIO / ICC / ACC Accessories Для принадлежностей ERBE VIO / ICC / ACC Para accesorios Erbe VIO / ICC / ACC		901-210	Für BOWA ARC 250/303/350/400 Generatoren Do generatorów BOWA ARC 250/303/350/400 For BOWA ARC 250/303/350/400 generators Для генераторов BOWA ARC 250/303/350/400 Para generadores BOWA ARC 250/303/350/400
Für Martin Zubehör Do akcesoriów Martin For Martin Accessories Для принадлежностей Martin Para accesorios Martin		901-220	

1000V_p/Вп

1000V_p/Вп

2.5 Prüfgerät
 Zestaw testowy
 Testing device
 Тестирующее устройство
 Comprador





050-230

Prüfgerät für Handgriffe und Kabel inklusive Trafo-Teil, 100–240 V AC

- Prüft zuverlässig den elektrischen Durchgang und die Funktion der Schalter
- Erspart unnötiges Sterilisieren defekter Teile
- Schafft mehr Sicherheit im OP
- Prüft Handgriffe passend für unterschiedliche Generatoren
- Stellt eine äußerst preiswerte Prüfvorrichtung dar

Das Prüfgerät ist geeignet zur Funktionsprüfung von:

- Monopolarkabel (3-Pin, Martin, Bovie und ERBE) und Handgriffe mit 2.4 mm und 4 mm Elektrodenaufnahmen
- Bipolarkabel (2-Pin, Martin, Erbe)
- Neutralelektrodenkabel (2-Pin, Martin, Erbe)
- TissueSeal®-Kabel
- LIGATOR®-Kabel
- NightKNIFE®-Kabel
- BOWA-Fußschalter 901-011, 901-021, 901-031 und 901-032
- BOWA COMFORT Kabel

Zestaw testowy dla uchwytów elektrod i kabli z wbudowanym transformatorem, 100–240 V AC

- wiarygodnie sprawdza obwód elektryczny i funkcje uchwytów
- oszczędza czas poświęcany na sterylizację wadliwych części
- zwiększa bezpieczeństwo na sali operacyjnej
- testuje uchwyty elektrod dla różnych typów generatorów
- prosty w użyciu zestaw testowy za niewielki koszt

Zestaw testowy umożliwia test funkcyjny:

- kabli monopolarnych (3-pin, Martin, Bovie i Erbe) i uchwytów z elektrodami 2.4 mm i 4 mm
- kabli bipolarnych (2-pin, Martin, Erbe)
- kabli elektrod neutralnych (2-pin, Martin, Erbe)
- kabli do TissueSeal®
- kabli do LIGATOR®
- kabli do NightKNIFE®a
- przełączników nożnych BOWA 901-011, 901-021 i 901-031
- kabli BOWA COMFORT

Testing device for electrode handles and cables including transformer, 100–240 V A.C.

- Reliable testing of electrical circuit and function of fingerswitches
- No waste of time by sterilizing faulty parts
- More safety in the OR
- Tests electrode handles for various generator types
- A simple to use testing unit at extremely low costs

The testing device is adequate for the functional test of:

- Monopolar cables (3-Pin, Martin, Bovie and ERBE) and handles with an electrode adapter of 2.4 mm and 4 mm
- Bipolar cables (2-Pin, Martin, Erbe)
- Return plates cables (2-Pin, Martin, Erbe)
- TissueSeal® cables
- LIGATOR® cables
- NightKNIFE® cables
- BOWA foot switches 901-011, 901-021, 901-031 and 901-032
- BOWA COMFORT cables

Тестирующее устройство для ручек и кабелей включая трансформатор, 100–240 V A.C.

- Надёжное тестирование электроцепи и функций ручных переключателей
- Нет потери времени для стерилизации сломанных частей
- Больше безопасности в операционной
- Тестирование разных держателей электродов для разных коагуляторов
- Простота использования тестирующего устройства при крайне малых затратах

Тестирующее устройство подходит для функционального теста:

- Монополярных кабелей (3-контактные, Martin, Bovie и ERBE) и держателей электродов с адаптером 2.4мм и 4мм
- Кабель TissueSeal®
- Кабель LIGATOR®
- Кабель NightKNIFE®
- Педали BOWA 901-011, 901-021, 901-031 и 901-032
- Кабели BOWA COMFORT

Comprobador para mangos y cables incluso transformador 100–240 V CA

- Comprueba fiablemente la corriente y la función de los interruptores
- Evita la esterilización de piezas defectuosas
- Para más seguridad en el quirófano
- Comprueba mangos para diferentes tipos de generadores
- Utilización fácil y de costos muy favorables

El comprobador es previsto para controlar las siguientes funciones:

- Cable monopolar (3-pin, Martin, Bovie y Erbe) y mangos porta electrodos de 2.4 o 4 mm
- Cable bipolar (2-pin, Martin, Erbe)
- Cable para electrodo neutro (2-pin, Martin, Erbe)
- Cable TissueSeal®
- Cable LIGATOR®
- Cable NightKNIFE®
- Interruptores de pie BOWA 901-011, 901-021, 901-031 y 901-032
- Cable BOWA COMFORT

- 3 Instrumente für Laparoskopie – MetraLOOP®, LapHaken, ErgoLAP, ERGO 300
 Instrumenty do laparoskopii – MetraLOOP®, haki, ErgoLAP, ERGO 300
 Instruments for laparoscopy – MetraLOOP®, Lap. hook, ErgoLAP, ERGO 300
 Инструменты для лапароскопии – MetraLOOP®, лап. крючок, ErgoLAP, ERGO 300
 Instrumentos para laparoscopia – MetraLOOP®, Gancho lap, ErgoLAP, ERGO 300

3.1 MetraLOOP®	3.1 Elektroden für die Laparoskopie	3.1 MetraLOOP®	3.1 Elektrody do laparoskopii	3.1 MetraLOOP®	3.1 Electrodes for laparoscopic surgery
3.2 ErgoLAP monopolar	3.2 ErgoLAP bipolar	3.2 ErgoLAP monopolarne	3.2 ErgoLAP bipolarne	3.2 ErgoLAP monopolar	3.2 ErgoLAP bipolar
3.3 ERGO bipolar	3.4 ERGO 300 Morzellator	3.3 ERGO bipolarne	3.4 Morcelator ERGO 300	3.3 ERGO bipolar	3.4 ERGO 300 Morcellator
3.1 MetraLOOP®	3.2 Elektrody для лапароскопии	3.1 MetraLOOP®	3.2 Electrodos de laparoscopia	3.1 MetraLOOP®	3.1 Electrodes de laparoscopia
3.2 Монополярные ErgoLAP	3.3 Биполярные ErgoLAP	3.2 ErgoLAP monopolar	3.3 ErgoLAP bipolar	3.2 ErgoLAP monopolar	3.3 ErgoLAP bipolar
3.4 Биполярные ERGO	3.5 ERGO 300 Морцеллятор	3.4 ERGO bipolar	3.5 ERGO 300 Morcelador	3.4 ERGO bipolar	3.5 ERGO 300 Morcellator
3.5 ERGO 300 Morzellator		3.5 ERGO 300 Morcellator		3.5 ERGO 300 Morcellator	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

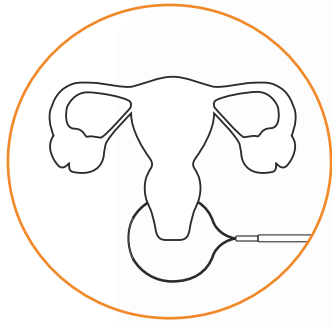
Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

3.1 MetraLOOP®



Laparoskopische suprazervikale Hysterektomie
Laparoskopowa histerektomia nadszyjkowa
Laparoscopic supracervical hysterectomy
Лапароскопическая супрацервикальная гистерэктомия
Histerektomia supracervical laparoscópica

1000V_p/Вп

Teflon-Isolation
Izolacja z Teflonu
Teflon insulation
Тефлоновая изоляция
Aislamiento Teflón

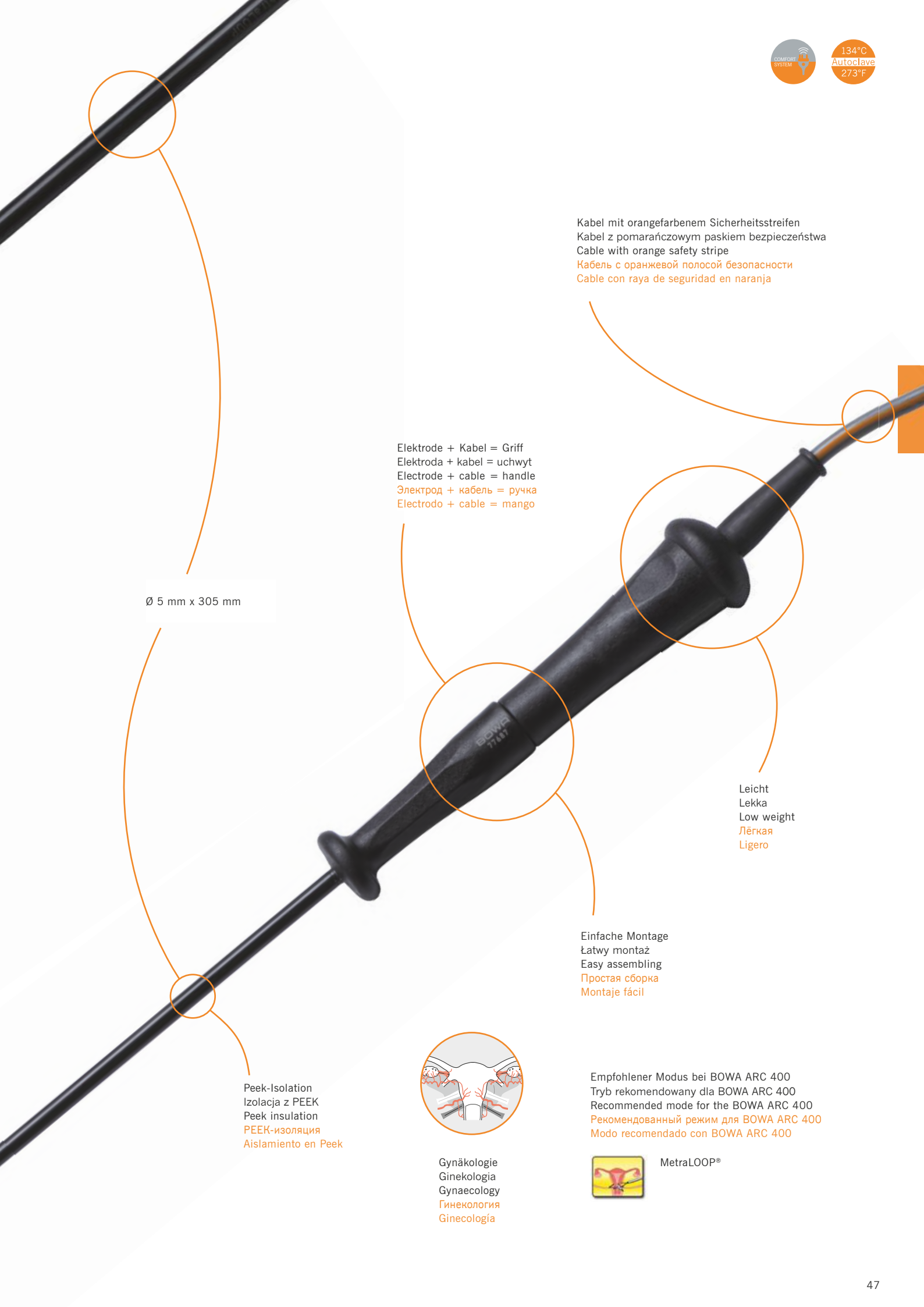
Keramik-Isolation
Ceramiczna izolacja
Ceramics insulation
Керамическая изоляция
Aislamiento en cerámica

Einfache Montage
Łatwy montaż
Easy assembling
Простая сборка
Montaje fácil

Verschiedene Ausführungen Ø 100 / 175 mm
Różne modele Ø 100 / 175 mm
Various designs Ø 100 / 175 mm
Различные модели Ø 100 / 175 мм
Varios tipos Ø 100 / 175 mm

Optimiert für BOWA ARC 400 MetraLOOP® Modus
Zoptymalizowana do trybu MetraLOOP® w ARC 400
Designed for ARC 400 MetraLOOP® Mode
Оптимально для режима MetraLOOP® ARC 400
Optimizado para BOWA ARC 400 Modo MetraLOOP®

BOWA
ARC
400



Kabel mit orangefarbenem Sicherheitsstreifen
 Kabel z pomarańczowym paskiem bezpieczeństwa
 Cable with orange safety stripe
 Кабель с оранжевой полосой безопасности
 Cable con raya de seguridad en naranja

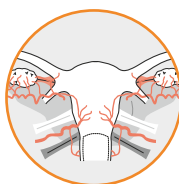
Elektrode + Kabel = Griff
 Elektroda + kabel = uchwyt
 Electrode + cable = handle
 Электрод + кабель = ручка
 Electrodo + cable = mango

Ø 5 mm x 305 mm

Leicht
 Lekka
 Low weight
 Лёгкая
 Ligero

Einfache Montage
 Łatwy montaż
 Easy assembling
 Простая сборка
 Montaje fácil

Peek-Isolation
 Izolacja z PEEK
 Peek insulation
 PEEK-изоляция
 Aislamiento en Peek





Gynäkologie
 Ginekologia
 Gynaecology
 Гинекология
 Ginecología



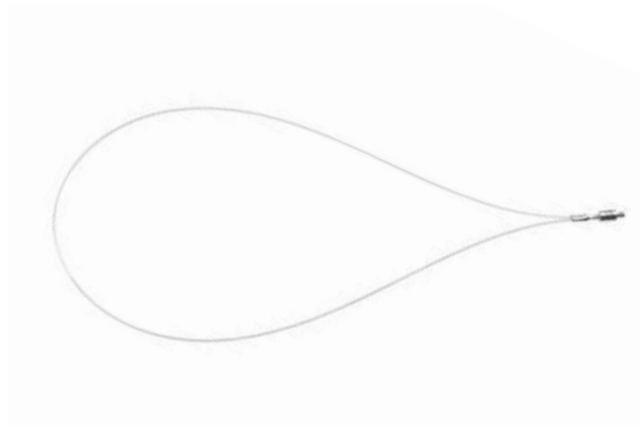

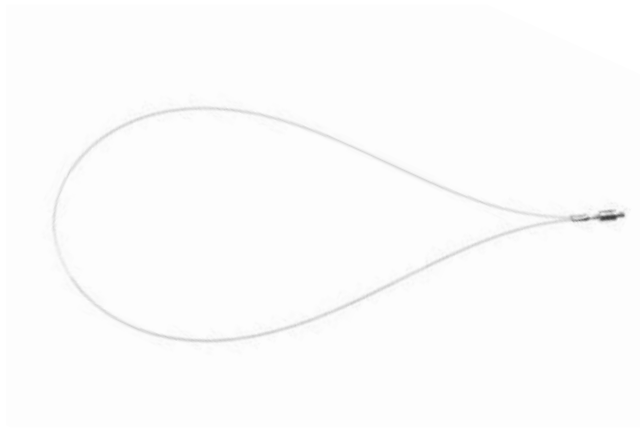





MetraLOOP®

Empfohlener Modus bei BOWA ARC 400
 Tryb rekomendowany dla BOWA ARC 400
 Recommended mode for the BOWA ARC 400
 Рекомендованный режим для BOWA ARC 400
 Modo recomendado con BOWA ARC 400



520-110	<p>MetraLOOP®, Innenschaft, Außenschaft MetraLOOP®, tuba wewnętrzna, zewnętrzna MetraLOOP®, inner shaft, outer shaft MetraLOOP®, внутренний стержень, стержневая трубка MetraLOOP®, tija interior, tija exterior</p>
520-115	<p>MetraLOOP®, COMFORT, Innenschaft, Außenschaft, Kabel 4.5 m MetraLOOP®, COMFORT, tuba wewnętrzna, zewnętrzna, kabel 4.5 m MetraLOOP®, COMFORT, inner shaft, outer shaft, cable 4.5 m MetraLOOP®, COMFORT, внутренний стержень, стержневая трубка, кабель 4.5 м MetraLOOP®, COMFORT, tija interior, tija exterior, cable 4.5 m</p> 
520-114	<p>MetraLOOP®, Außenschaft MetraLOOP®, tuba zewnętrzna MetraLOOP®, outer shaft MetraLOOP®, стержневая трубка MetraLOOP®, tija exterior</p>
520-113	<p>MetraLOOP®, Innenschaft MetraLOOP®, tuba wewnętrzna MetraLOOP®, inner shaft MetraLOOP®, внутренний стержень MetraLOOP®, tija interior</p>
520-116	<p>MetraLOOP®, COMFORT, Innenschaft, Kabel 4.5 m MetraLOOP®, COMFORT, tuba wewnętrzna, kabel 4.5 m MetraLOOP®, COMFORT, inner shaft, cable 4.5 m MetraLOOP®, COMFORT, внутренний стержень, кабель 4.5 м MetraLOOP®, COMFORT, tija interior, cable 4.5 m</p> 



	<p>520-117</p>	<p>MetraLOOP®, Ersatzschlingen Ø 100 mm, Einweg, steril / 10 Stk. MetraLOOP®, pętle zapasowe Ø 100 mm, jednorazowe, sterylne / 10 szt. MetraLOOP®, spare loops, Ø 100 mm, single use, sterile / 10 pcs. MetraLOOP®, сменная петля Ø 100 мм, одноразовая, стерильная / 10 штук MetraLOOP®, asas de recambio Ø 100 mm, desechable, estéril / 10 uds.</p> <p style="text-align: center;"> STERILE</p>
	<p>520-118</p>	<p>MetraLOOP®, Ersatzschlingen Ø 175 mm, Einweg, steril / 10 Stk. MetraLOOP®, pętle zapasowe Ø 175 mm, jednorazowe, sterylne / 10 szt. MetraLOOP®, spare loops, Ø 175 mm, single use, sterile / 10 pcs. MetraLOOP®, сменная петля Ø 175 мм, одноразовая, стерильная / 10 штук MetraLOOP®, asas de recambio Ø 175 mm, desechable, estéril / 10 uds.</p> <p style="text-align: center;"> STERILE</p>
 <p>Ø 8 mm</p>	<p>BOWA Erbe International Martin International Valleylab Conmed</p>	<p>370-050 (4.5 m)</p>
 <p>Ø 4 mm</p>	 <p>Ø 4 mm</p> <p>6-Kant 6-kątna Hexagon coding Шестигранная кодировка Hexagonal</p>	<p>Erbe T-Serie und andere mit 4 mm Ø Buchse Erbe serii T i inne z gniazdem Ø 4 mm Erbe T series and others with 4 mm Ø socket ERBE T-серия и другие с 4 мм Ø разъёмом Erbe serie T y otros con casquillo 4 mm Ø</p> <p>280-035 (4.5 m)</p>
 <p>Ø 5 mm</p>	<p>Erbe VIO/ICC/ACC</p>	<p>101-060 (4.5 m)</p>

3.2 Elektroden für die Laparoskopie
 Elektrody do laparoskopii
 Electrodes for laparoscopic surgery
 Электроды для лапароскопии
 Electrodo de laparoscopia

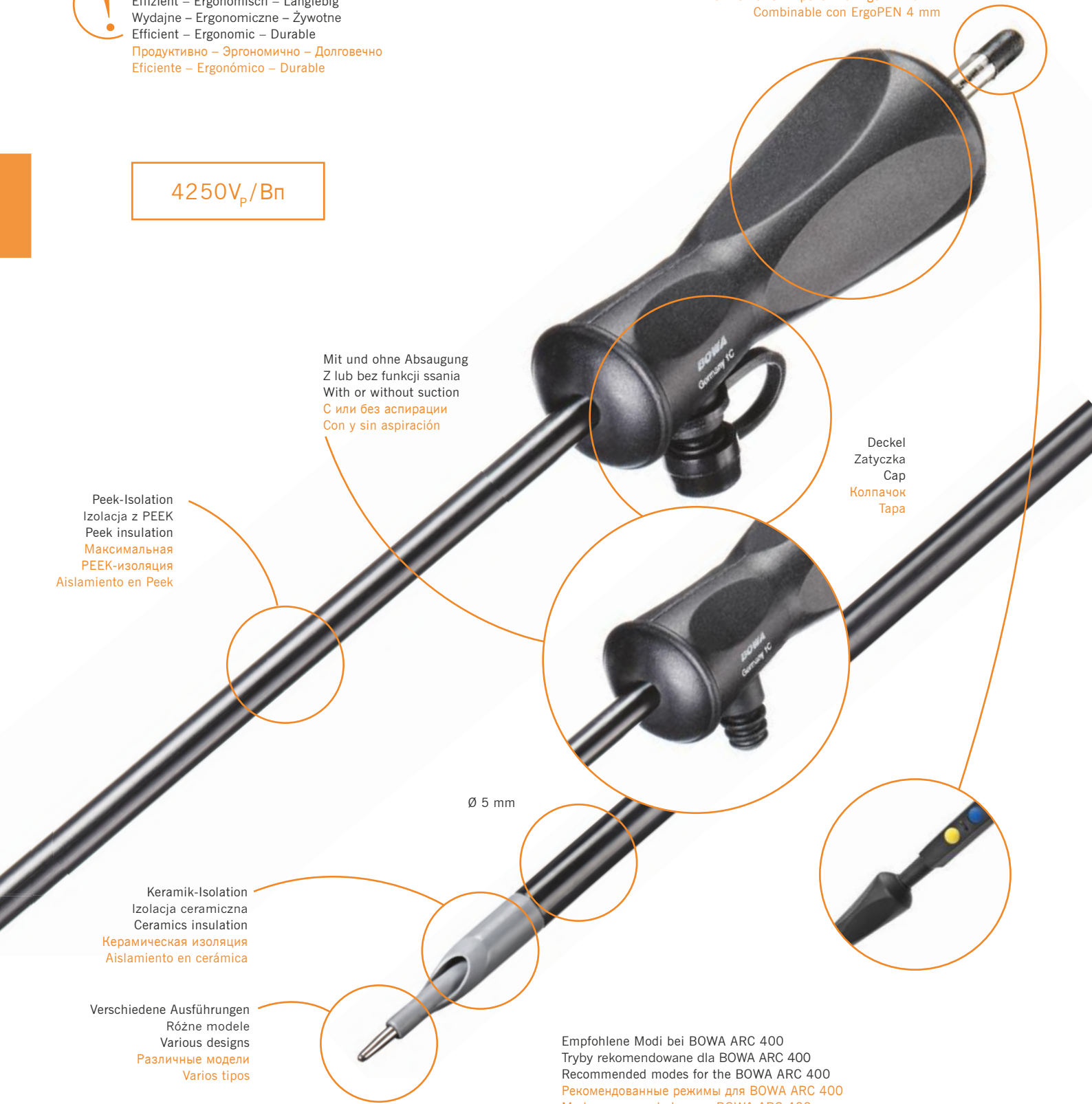
134°C
 Autoclave
 273°F



Effizient – Ergonomisch – Langlebig
 Wydajne – Ergonomiczne – Żywotne
 Efficient – Ergonomic – Durable
 Продуктивно – Эргономично – Долговечно
 Eficiente – Ergonómico – Durable

Kombinierbar mit ErgoPEN 4 mm
 Możliwość połączenia z uchwytem ErgoPEN 4 mm
 Can be combined with ErgoPEN 4 mm
 Можно комбинировать с ErgoPEN 4 мм
 Combinable con ErgoPEN 4 mm

4250V_p/Вп



Mit und ohne Absaugung
 Z lub bez funkcji ssania
 With or without suction
 С или без аспирации
 Con y sin aspiración

Peek-Isolation
 Izolacja z PEEK
 Peek insulation
 Максимальная
 PEEK-изоляция
 Aislamiento en Peek

Deckel
 Zatyczka
 Cap
 Колпачок
 Tapa

Ø 5 mm

Keramik-Isolation
 Izolacja ceramiczna
 Ceramics insulation
 Керамическая изоляция
 Aislamiento en cerámica

Verschiedene Ausführungen
 Różne modele
 Various designs
 Различные модели
 Varios tipos

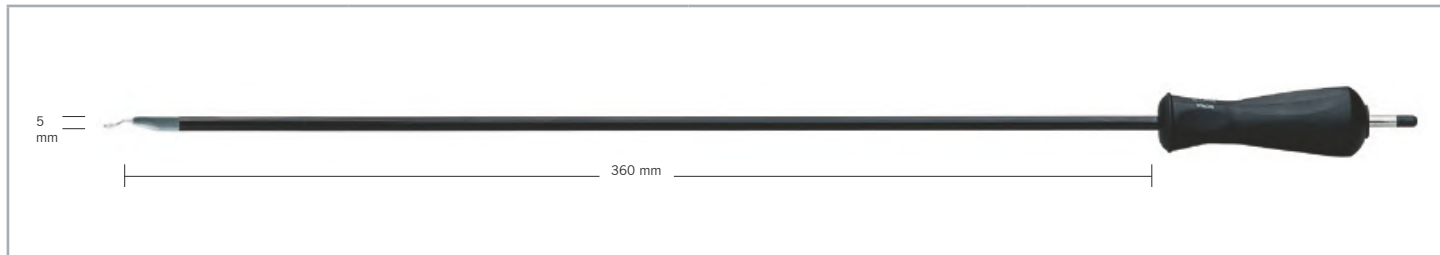
Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



Laparoskopie CUT
 Laparoscopia CUT
 Laparoscopy CUT
 Лапароскопический
 разрез
 Laparoscopia CUT



Laparoskopie COAG
 Laparoscopia COAG
 Laparoscopy COAG
 Лапароскопическая
 коагуляция
 Laparoscopia COAG

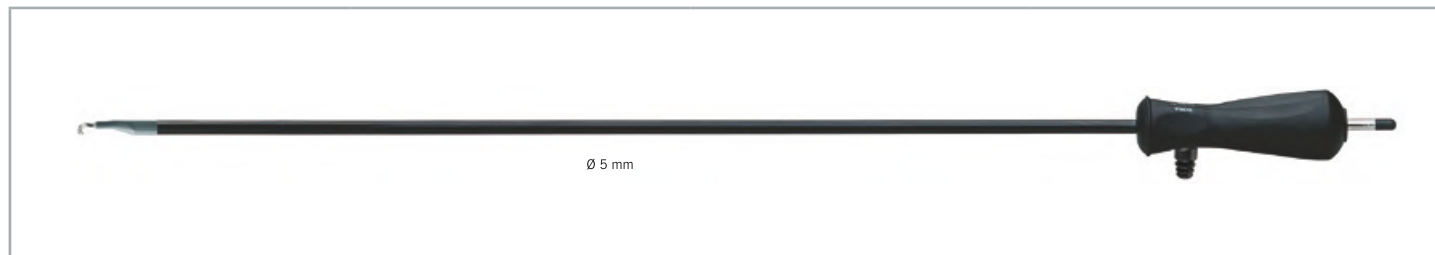


Ohne Absaugung
Bez funkcji ssania
Without suction
Без аспирации
Sin aspiración

	<p>Spatelförmig Szpatuła Spatula Шпатель Espátula</p>	<p>700-003</p>	
	<p>Verstärkter Haken "J" Мосны hak "J" Strong hook "J" Массивный крючок "J" Gancho reforzado "J"</p>	<p>700-004</p>	
	<p>Feiner Haken "L" Cienki hak "L" Thin hook "L" Тонкий крючок "L" Gancho fino "L"</p>	<p>700-005</p>	
	<p>Nadel Igła Needle Игла Aguja</p>	<p>700-006</p>	

3.2 Elektroden für die Laparoskopie
 Elektrody do laparoskopii
 Electrodes for laparoscopic surgery
 Электроды для лапароскопии
 Electrodo de laparoscopia

134°C
 Autoclave
 273°F




Mit Absaugung und Dichtkappe
 Z funkcją ssania i zamknięciem
 With suction and sealing cap
 С аспирацией и колпачком
 Con aspiración y tapa





	<p>Spatelförmig Szpatuła Spatula Шпатель Espátula</p>	<p>710-003</p>	
	<p>Verstärkter Haken "J" Mocny hak "J" Strong hook "J" Массивный крючок "J" Gancho reforzado "J"</p>	<p>710-004</p>	
	<p>Feiner Haken "L" Cienki hak "L" Thin hook "L" Тонкий крючок "L" Gancho fino "L"</p>	<p>710-005</p>	
	<p>Nadel Igła Needle Игла Aguja</p>	<p>710-006</p>	

3.2 Zubehör
Akcesoria
Accessories
Принадлежности
Accesorios









	<p>700-099</p>	<p>Dichtungskappe (5 Stck.) Kotłak uszczelniający (5 szt.) Sealing cap (5 pcs.) Уплотнительный колпачок (5 шт.) Tapón hermético (5 uds.)</p>
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3.2 Anschlusskabel monopolar
Kable monopolarne
Connecting cables monopolar
Монопольные соединительные кабели
Cables de conexión monopolares

<p>Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Разъём со стороны генератора Enchufe, parte generador</p>	<p>Stecker, Instrumentenseite Wtyczka – strona instrumentu Plug, instrument side Разъём со стороны инструмента Enchufe, parte instrumento</p>	<p>Passend für Gerätetyp Przystosowane do generatorów Fitting generator type Подходит для генераторов типа Para generadores tipo</p>	<p>REF</p>
 <p>∅ 5 mm</p>		<p>Erbe VIO / ICC / ACC</p>	<p>101-060 (4.5 m)</p>
 <p>∅ 4 mm</p>	 <p>∅ 4 mm</p> <p>6-Kant 6-kałna Hexagon coding Шестигранная кодировка Hexagonal</p>	<p>4 mm Ø Buchse Gniazdo Ø 4 mm 4 mm Ø socket 4 mm Ø разъём Casquillo 4 mm Ø</p>	<p>280-035 (4.5 m)</p>
 <p>∅ 8 mm</p>		<p>BOWA ERBE International Martin International Valleylab Conmed</p>	<p>370-050 (4.5 m)</p>









 <p>360 mm</p> <p>∅ 5 mm</p>	736-005	<p>Handgriff, Schaftrohr und Ersatzdichtungen Uchwyt, tuba i części zamienne Handle, shaft tube and sealing spare parts Ручьятка, стержневая трубка и запечатывающие колпачки Mango, vástago y juntas de recambio</p>
	720-000	<p>Handgriff mit Rasterung Uchwyt z zaczepem Handle with ratchet Ручьятка с кремальерой Mango con trinquete integrado</p>
722-530		
 <p>360 mm</p> <p>∅ 5 mm</p>		<p>Schaftrohr Tuba Shaft tube Стержневая трубка Tubo</p>
	721-301	<p>Maulteil für Faszange 2 x 4 Zähne Wkład do szczypiec 2 x 4 zęby Jaw for forceps 2 x 4 teeth Рабочая вставка, щипцы с зубцами 2x4 Inserto pinza de agarre 2 x 4 dientes</p>
	721-302	<p>Maulteil für DeBakey Faszange, atraumatisch Wkład do szczypiec DeBakey, atraumatyczne Jaw for DeBakey grasping forceps, atraumatic Рабочая вставка, щипцы DeBakey, атравматичные Inserto pinza de agarre, tipo DeBakey, atraumático</p>
	721-303	<p>Maulteil für Babcock Faszange, atraumatisch Wkład do szczypiec Babcock, atraumatyczne Jaw for Babcock grasping forceps, atraumatic Рабочая вставка, щипцы Babcock, атравматичные Inserto pinza de agarre, tipo Babcock, atraumático</p>



	<p>721-304</p>	<p>Maulteil für Schere nach Metzenbaum, gebogen Wkład do zagiętych nożyczek Metzenbaum Jaw for Metzenbaum scissors, curved Рабочая вставка, ножницы Metzenbaum, изогнутые Inserto tipo tijera Metzenbaum, acodado</p>
	<p>721-306</p>	<p>Maulteil für Hakenschere Wkład do nożyczek hakowatych Jaw for hook scissors Рабочая вставка, ножницы клювовидные Inserto tijera tipo de gancho</p>
	<p>721-307</p>	<p>Maulteil für Dorsey Fasszange Wkład do szczypiec Dorsey Jaw for Dorsey grasping forceps Рабочая вставка, щипцы Dorsey Inserto pinza de agarre tipo Dorsey</p>
	<p>721-308</p>	<p>Maulteil für Fundus Fasszange Wkład do szczypiec Fundus Jaw for Fundus grasping forceps Рабочая вставка, щипцы Fundus Inserto pinza de agarre, tipo Fundus</p>
	<p>721-309</p>	<p>Maulteil für Maryland Dissektor Wkład do dysektora Maryland Jaw for Maryland dissector Рабочая вставка, щипцы Maryland, диссектор Inserto dissector Maryland</p>
	<p>721-310</p>	<p>Maulteil für Alligator Fasszange Wkład do szczypiec Alligator Jaw for Alligator grasping forceps Рабочая вставка, щипцы Alligator Inserto pinza de agarre tipo aligatór</p>



3.3 Anschlusskabel für ErgoLAP monopolar
 Kable przyłączeniowe do monopolarnego ErgoLAP
 Connecting cables for ErgoLAP monopolar
 Соединительные кабели для монополярных ErgoLAP
 Cables de conexión para ErgoLAP monopolar



Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Разъём со стороны генератора Enchufe, parte generator	Stecker, Instrumentenseite Wtyczka – strona instrumentu Plug, instrument side Разъём со стороны инструмента Enchufe, parte instrumento	Passend für Gerätetyp Przystosowane do generatorów Fitting generator type Подходит к генератору типа Para generator tipo	REF
 <p>∅ 5 mm</p>		Erbe VIO / ICC / ACC	101-145 (4.5 m)
 <p>12.5 mm 8 mm 4 mm</p>		Martin	270-145 (4.5 m)
 <p>∅ 8 mm</p>	 <p>∅ 4 mm</p>	BOWA ERBE International Martin International Valleylab Conmed	360-145 (4.5 m)
 <p>∅ 4 mm</p>		4 mm Ø Buchse Gniazdo Ø 4 mm 4 mm Ø socket 4 mm Ø разъём Casquillo 4 mm Ø	480-145 (4.5 m)
 <p>31.75 mm</p>		BOWA COMFORT	360-245 (4.5 m)



3.3 Zubehör
 Akcesoria
 Accessories
 Принадлежности
 Accesorios

<p>Ersatzdichtungen Części zamienne Sealing spare parts Уплотнительные колпачки Anillos de estanqueidad, recambio</p>		<p>723-020</p>
		
<p>4 Reinigungsbürsten, LAP 4 szczotki czyszczące, LAP 4 Cleaning brushes, LAP 4 Щётки для чистки LAP 4 Escobillas de limpieza, LAP Ø 3,4,6,9 x 500 mm</p>	<p>723-000</p>	



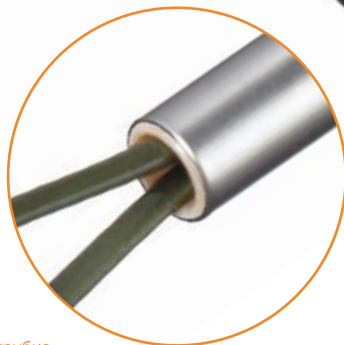
Komfortabel – Ergonomisch
 Wygodny – Ergonomiczny
 Comfortable – Ergonomic
 Комфортно – Эргономично
 Cómodo – Ergonómico

300 / 530V_p / Вп



reddot design award
 winner 2001

Bipolar
 Bipolarny
 Bipolar
 Биполярный
 Bipolar



Innenschaftrohr
 Tuba wewnętrzna
 Inner shaft tube
 Внутренняя стержневая трубка
 Tubo interior



Verschiedene Ausführungen
 Różne modele
 Various designs
 Различные модели
 Varios tipos

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



Bipolar COAG



Bipolar CUT









	<p>330 mm</p> <p>∅ 5 mm</p>	
<p>reddot design award winner 2001</p>	<p>750-033</p>	<p>Handgriff, Außen- und Innenschaftrohr und Ersatzdichtungen Uchwyt, tuba zewnętrzna i wewnętrzna, części zamienne Handle, outer and inner shaft tube and sealing spare parts Рукоятка, внешняя и внутренняя стержневые трубки и уплотнительные колпачки Mango, tubo exterior y interior y juntas de recambio</p>
	<p>750-000</p>	<p>Handgriff Uchwyt Handle Рукоятка Mango</p>
<p>330 mm</p> <p>∅ 5 mm</p>	<p>755-033</p>	<p>Außenschaftrohr Tuba zewnętrzna Outer shaft tube Внешняя стержневая трубка Tubo exterior</p>
	<p>756-033</p>	<p>Innenschaftrohr Tuba wewnętrzna Inner shaft tube Внутренняя стержневая трубка Tubo interior</p>
	<p>751-033</p>	<p>Mauleinsatz nach „Hirsch“ Szczęki "Hirsch" Jaw insert „Hirsch“ Рабочая вставка, щипцы "Hirsch" Inserto pinza tipo „Hirsch“</p>
	<p>752-033</p>	<p>Mauleinsatz nach „Kleppinger“ Szczęki "Kleppinger" Jaw insert „Kleppinger“ Рабочая вставка, щипцы "Kleppinger" Inserto pinza tipo „Kleppinger“</p>
	<p>753-033</p>	<p>Mauleinsatz: Pinzette Szczęki: szczypce Jaw insert tweezers Рабочая вставка, пинцет Inserto pinza</p>
	<p>754-033</p>	<p>Mauleinsatz: Micropinzette Szczęki: mikroszczypce Jaw insert micro-tweezers Рабочая вставка, микропинцет Inserto micropinza</p>
	<p>760-033</p>	<p>Maulteil für NON-Stick CUT, messerförmig Szczęki do cięcia NON-Stick, forma nożowa Jaws for NON-Stick CUT, knife-shaped Рабочая вставка, нож тонкий NON-Stick CUT Inserto non-stick CUT, tipo cuchillo</p>
	<p>761-033</p>	<p>Maulteil für NON-Stick CUT, keilförmig Szczęki do cięcia NON-Stick, forma klinowa Jaws for NON-Stick CUT, knife-shaped Рабочая вставка, нож клиновидный NON-Stick CUT Inserto non-stick CUT, cuneado</p>

300V_p/Bп

530V_p/Bп

3.4 Anschlusskabel ErgoLAP bipolar Kable do ErgoLAP bipolarnego Connecting cables ErgoLAP bipolar Соединительные кабели для биполярного ErgoLAP Cables de conexión ErgoLAP bipolar





Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Разъём со стороны генератора Enchufe, parte generador	Stecker, Instrumentenseite Wtyczka – strona instrumentu Plug, instrument side Штекер со стороны инструмента Enchufe, parte instrumento	REF	Passend für Gerätetyp Przystosowane do generatorów Fitting generator type Подходит к генератору типа Para generadores tipo
		101-245 (4.5 m)	Erbe ACC / ICC Erbe T-Serie Erbe VIO*
		287-245 (4.5 m)	Martin
		351-245 (4.5 m)	BOWA Erbe VIO* Valleylab Conmed
		350-245 (4.5 m)*	Erbe VIO International*
		351-345 (4.5 m)	BOWA COMFORT

* Abhängig von jeweiliger Buchsenkonfiguration
Zależy od indywidualnej konfiguracji gniazda
Depends on individual socket configuration
Зависит от индивидуальной конфигурации разъёмов
Según la configuración de enchufes respectiva

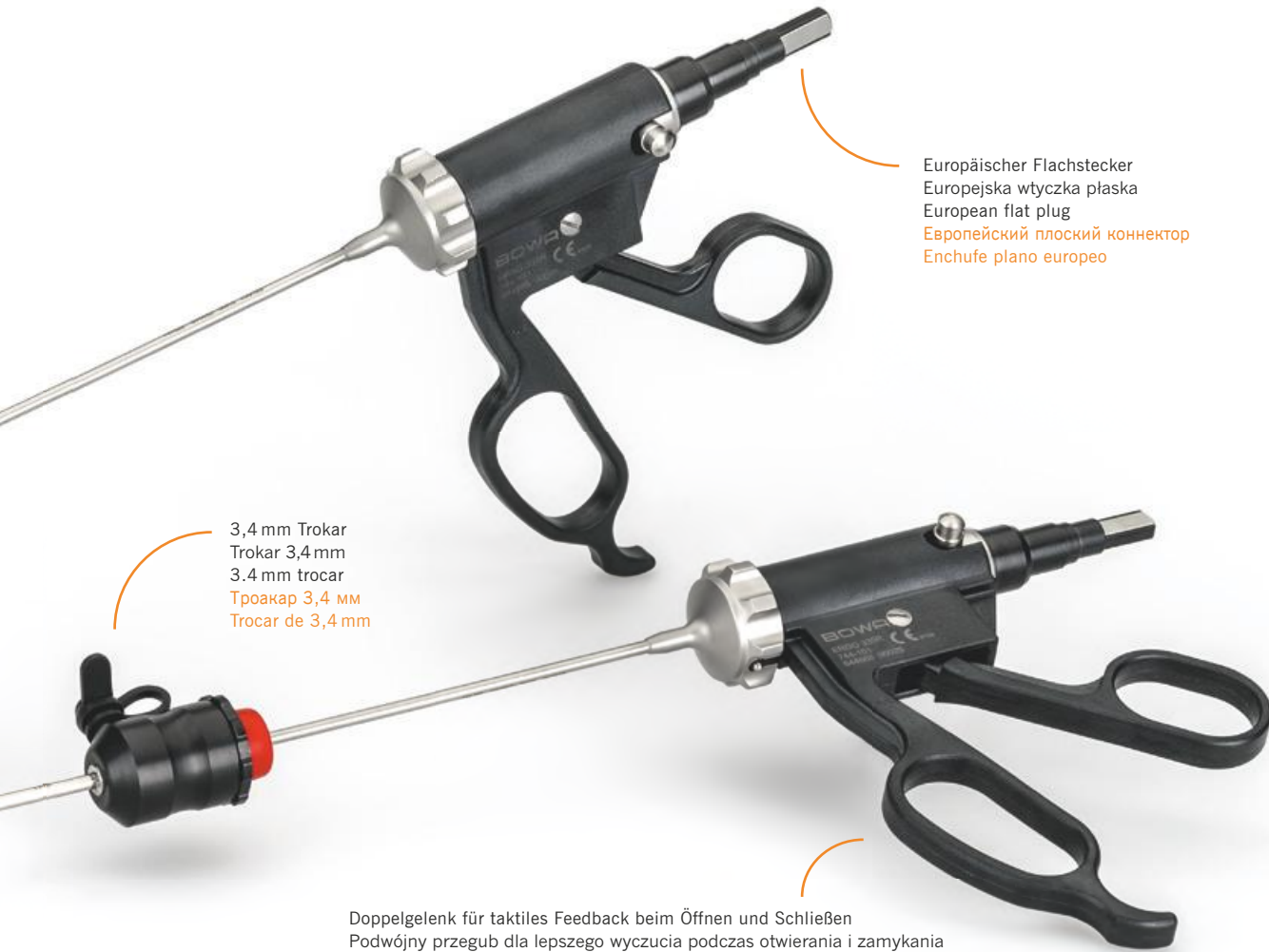


3.4 Zubehör
 Akcesoria
 Accessories
 Принадлежности
 Accesorios

<p>Ersatzdichtungen Części zamienne Sealing spare parts Уплотнительные колпачки Anillos de estanqueidad, recambio</p>		<p>750-010</p>
		
<p>4 Reinigungsbürsten, LAP 4 szczotki czyszczące, LAP 4 Cleaning brushes, LAP 4 Щётки для чистки LAP 4 Escobillas de limpieza, LAP Ø 3,4,6,9 x 500 mm</p>	<p>723-000</p>	

3.5 ERGO BIPOLAR

Koagulationsinstrumente für die Laparoskopie in 5 und 3 mm
 Laparoskopowe instrumenty do koagulacji w wersji 5 mm oraz 3 mm
 Laparoscopic coagulation instruments, 5 mm & 3 mm
 Лапароскопические инструменты для коагуляции, 3 мм и 5 мм
 Instrumentos de coagulación para laparoscopia en 5 y 3 mm



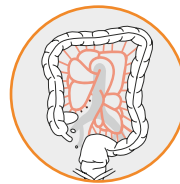
Europäischer Flachstecker
 Europejska wtyczka płaska
 European flat plug
 Европейский плоский коннектор
 Enchufe plano europeo

3,4 mm Trokar
 Trokar 3,4 mm
 3.4 mm trocar
 Троакар 3,4 мм
 Trocar de 3,4 mm

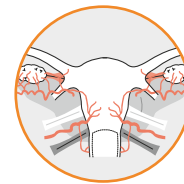
Doppelgelenk für taktiles Feedback beim Öffnen und Schließen
 Podwójny przegub dla lepszego wyczucia podczas otwierania i zamykania
 Double joint for tactile feedback when opening and closing
 Двойное соединение для тактильной обратной связи при открытии и закрытии
 Doble junta para retroalimentación táctil al abrir y cerrar



Verschiedene Ausführungen
 Różne modele
 Various designs
 Различные варианты
 Varios tipos



Allgemeinchirurgie
 Chirurgia ogólna
 General Surgery
 Общая хирургия
 Cirugía general



Gynäkologie
 Ginekologia
 Gynaecology
 Гинекология
 Ginecologia



Urologie
 Urologia
 Urology
 Урология
 Urología

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400












LAP Coag



LAP micro

3.5 ERGO BIPOLAR Koagulationsinstrumente Ø 5 mm
 Kleszcze do koagulacji Ø 5 mm
 5 mm coagulation instruments
 Лапароскопические инструменты Ø 5 мм
 Instrumental de coagulación Ø 5 mm



	Schaftrrohr / Tuba / Shaft / Тубус / Tubo		Griffvarianten / Wariant uchwytu / Handle options / Варианты рукоятки / Versiones del mango			REF
 Maulteil Wkład szczękowy Jaw insert Рабочая вставка Mordaza	340 mm 741-234	340 mm 742-234	 ERGO 320R COMFORT Handgriff, Kabel 4,5 m Uchwyt, kabel 4,5 m Handle, 4.5 m cable Рукоятка, кабель 4,5 м Mango, cable 4,5 m	 ERGO 320R Handgriff Uchwyt Handle Рукоятка Mango	 ERGO 325R Handgriff, drehbar, mit Arretierung Uchwyt, obrotowy z blokadą Rotating handle, with lock Рукоятка, вращающаяся, с фиксацией Mango, giratorio, con bloqueo	Komplettinstrument bestehend aus: Maulteil, Schaftrrohr, Handgriff Kompletny instrument składa się z: Wkład szczękowy, Tuba, Uchwyt Complete instrument Consisting of: Jaw insert, shaft, handle Инструмент в комплекте Состав: Рабочая вставка, Тубус, Рукоятка Instrumento completo compuesto por: Mordaza, tubo, mango
 Atraumatische Faszange, gefenstert Atraumatyczne kleszcze chwytające, okienkowe Atraumatic forceps, fenestrated Атрауматические щипцы, окончатые Pinza de agarre atraumática, fenestrada 742-310	●		●			741-812
	●			●		741-814
		●			●	742-816
 Faszange, gefenstert, gebogen Kleszcze chwytające, okienkowe, zagięte Forceps, fenestrated, curved Щипцы, окончатые, изогнутые Pinza de agarre fenestrada, curvada 742-320	●		●			741-822
	●			●		741-823
		●			●	742-826
 Metzenbaum Schere Nożyczki Metzenbaum „Metzenbaum“ scissor Ножницы Metzenbaum Tijera Metzenbaum 742-330	●		●			741-832
	●			●		741-833
		●			●	742-836
 Maryland Dissektor Dysektor Maryland „Maryland“ dissector Диссектор Maryland Disector Maryland 742-340	●		●			741-842
	●			●		741-843
		●			●	742-846
 Faszange mit 2x3 Zähnen Kleszcze chwytające, 2x3 zęby Forceps with 2x3 teeth Щипцы с зубцами 2x3 Pinza de agarre con dentado 2x3 742-350	●		●			741-827
	●			●		741-828
		●			●	742-829





3.5 ERGO BIPOLAR Koagulationsinstrumente Ø 3 mm
 Kleszcze do koagulacji Ø 3 mm
 3 mm coagulation instruments
 Лапароскопические инструменты Ø 3 мм
 Instrumental de coagulación Ø 3 mm








		Schaftrohr / Tuba / Shaft / Тубус / Tubo		Griffvarianten / Wariant uchwytu / Handle options / Варианты рукоятки / Versiones del mango		REF
<p>Maulteil Wkład szczękowy Jaw insert Рабочая вставка Mordaza</p>						<p>Komplettinstrument bestehend aus: Maulteil, Schaftrohr, Handgriff Kompletny instrument składa się z: Wkład szczękowy, Tuba, Uchwyt Complete instrument Consisting of: Jaw insert, shaft, handle Инструмент в комплекте Состав: Рабочая вставка, Тубус, Рукоятка Instrumento completo compuesto por: Mordaza, tubo, mango</p>
<p>Atraumatische Faszange, gefenstert Atraumatyczne kleszcze chwytające, okienkowe Atraumatic forceps, fenestrated Атравматические щипцы, окончатые Pinza de agarre atraumática, fenestrada</p>		744-313				744-812
						744-815
		744-312				744-813
						744-816
<p>Maryland Dissektor Dysektor Maryland „Maryland“ dissector Диссектор Maryland Disector Maryland</p>		744-343				744-844
						744-847
		744-342				744-845
						744-848

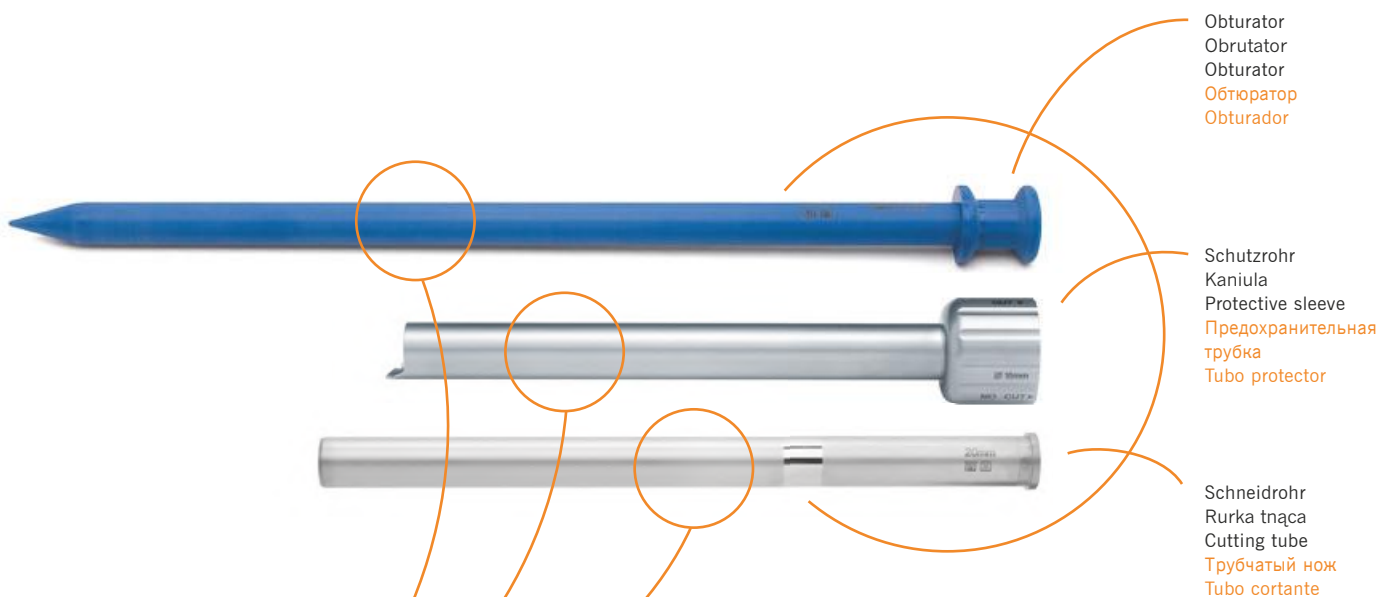
3.5 ERGO BIPOLAR Zubehör Akcesoria Accessories Принадлежности Accesorios



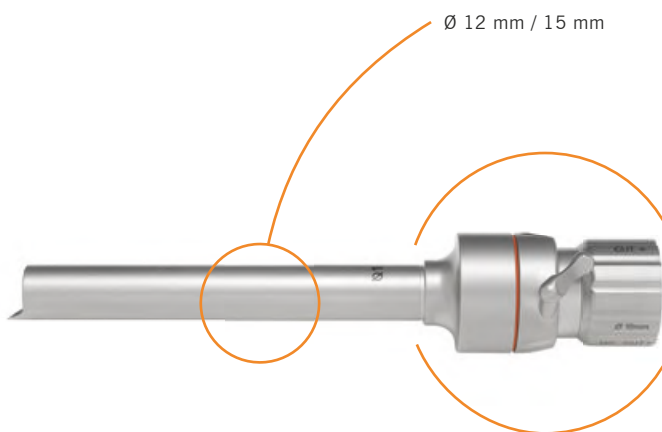
		L	Durchlass Średnica Aperture Просвет Paso	REF
	Trocarhülse mit Insufflationshahn Metallrohr, glatt, distal abgeschrägt Kaniula trokaru z kurkiem do insuflacji, metalowa tuba, gładka, ukośna dystalnie Trocar sleeve with insufflation tap, metal tube, smooth, distal bevel Тубус троакара с клапаном газоподачи, металлическая гладкая трубка с дистальным скосом Trocar con llave de insuflación Tubo metálico liso, con biselado distal	100 mm	3.4 mm	745-100
	Trokar, Spitze dreikantig Trokar, trójgraniasty Trocar, triangular tip Стилет троакара трехгранный Trocar, punta triangular			745-200
	Silikonventil für Trocarhülse (5 Stk.) Silikonowy zawór do kaniuli trokaru (5 szt.) Silikon valve for trocar sleeve (5 pcs.) Силиконовый клапан для троакара (5 шт.) Válvula de silicone para trocar (5 pzs.)			745-120
	Dichtungskappe für Trocarhülse (5 Stk.) Uszczelka do kaniuli trokaru (5 szt.) Sealing for trocar sleeve (5 pcs.) Уплотнительный колпачок для троакара (5 шт.) Tapa de cierre para trocar (5 pzs.)			745-130

Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato				
				
28.58 mm	12.5 mm 8 mm 4 mm	22 mm	6 mm 12 mm	
BOWA Erbe International* Martin International Valleylab Conmed	Erbe VIO / ICC / ACC Erbe T-Serie	Erbe VIO International*	Martin	
				
BOWA-Pinzette Europäischer Flachstecker Szczypce BOWA Europejska wtyczka płaska BOWA forceps European flat connector Пинцеты BOWA с Европейским плоским коннектором Pinza BOWA conector europeo plano	351-040 (4.5 m)	101-040 (4 m)	353-040 (4,5 m)	287-040 (4.5 m)
Instrumentenseitig / Po stronie instrumentu / At the instrument / Со стороны инструмента / Lado del instrumento	* Abhängig von der jeweiligen Buchsenkonfiguration * Zależy od indywidualnej konfiguracji gniazda * Depending on the respective socket configuration		* В зависимости от соответственной конфигурации разъёмов * Según la configuración de enchufes respectiva	

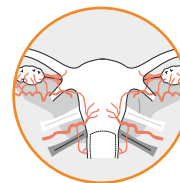
3.6 ERGO 300 Morzellator
 Morcelator
 Morcellator
 Морцеллятор
 Morcelador



Mikromotor ERGO 300 mit Kabel 3 m
 Mikromotor ERGO 300 z kablem 3 m
 Micromotor ERGO 300 with cable 3 m
 Микромотор для морцеллятора ERGO 300 с кабелем 3 м
 Micromotor ERGO 300 con cable 3 m



Trokarhülse
 Kaniula trokaru
 Trocar sleeve
 Гильза троакара
 Casquillo de trocar



Gynäkologie
Ginekologia
Gynaecology
Гинекология
Ginecología

Vario-Fußschalter mit Kabel 3 m
Włącznik nożny Vario z kablem 3 m
Vario Foot switch with cable 3 m
Ножной переключатель с кабелем 3 м
Vario interruptor de pie con cable 3 m









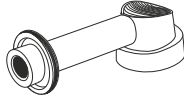
Steuergerät ERGO 300, Netzkabel 3 m
Jednostka sterująca ERGO 300 z kablem zasilającym 3 m
Control unit ERGO 300 including power cord 3 m
Устройство управления для морцеллятора ERGO 300 с кабелем 3 м
Unidad de control ERGO 300 con cable 3 m




3.6 ERGO 300 Morzellator
 Morcelator
 Morcellator
 Морцеллятор
 Morcelador



	<p>905-001</p>	<p>Steuergerät ERGO 300, Netzkabel 3 m Jednostka sterująca ERGO 300, kabel sieciowy 3 m Control unit ERGO 300 including power cord 3 m Устройство управления для морцеллятора ERGO 300 с кабелем 3 м Unidad de control ERGO 300 con cable 3 m</p> <p>(TCM 3000 BL Morcellator)</p>
	<p>905-002</p>	<p>Mikromotor ERGO 300 mit Kabel 3 m Mikromotor ERGO 300 z kablem 3 m Micromotor ERGO 300 with cable 3 m Микромотор для морцеллятора ERGO 300 с кабелем 3 м Micromotor ERGO 300 con cable 3 m</p>
	<p>905-003</p>	<p>Vario-Fußschalter mit Kabel 3 m Włącznik nożny Vario z kablem 3 m Vario Foot switch with cable 3 m Ножной переключатель с кабелем 3 м Vario interruptor de pie con cable 3 m</p>
	<p>905-004</p>	<p>Getriebeeinheit komplett mit Dichtungen Jednostka napędowa z kompletem uszczelkek Gear unit complete including seals Передаточное устройство с уплотнителями Unidad de transmisión completa, con juntas</p>
	<p>905-005</p>	<p>Handgriff Uchwyt Handle Рукоятка Mango</p>



905-000 SET			
	905-001		905-004
			905-005
	905-002		905-006
	905-003		905-007

	905-612 Ø 12 mm	905-615 Ø 15 mm	905-620 Ø 20 mm	Anwendungsset Zestaw do aplikacji Application set Набор в комплекте Set de aplicación
	905-112	905-115	905-120	Schneidrohr Rurka tnąca Cutting tube Трубчатый нож Tubo cortante
	905-012	905-015	905-020	Obturator Obturator Obturator Обтюратор Obturador
	905-212	905-215	905-220	Schutzrohr Kaniula Protective sleeve Предохранительная трубка Tubo protector



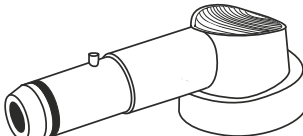
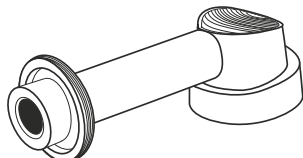


3.6 ERGO 300 Morzellator
 Morcelator
 Morcellator
 Морцеллятор
 Morcelador

134°C
 Autoclave
 273°F



	Ø 12 mm	Ø 15 mm	Ø 20 mm	
	905-312	905-315	-	Trokarhülse Kaniula trokaru Trocar sleeve Гильза троакара Casquillo de trocar

3.6 Zubehör
 Akcesoria
 Accessories
 Принадлежности
 Accesorios

	905-412	Tenaculum Zange Ø 10 mm Kleszcze tenaculum Ø 10 mm Tenaculum forceps Ø 10 mm Щипцы Tenaculum Ø 10 mm Pinza tenáculo Ø 10 mm
	905-415	Greifzange Ø 10 mm Kleszcze chwytające Ø 10 mm Claw grasper Ø 10 mm Щипцы захватывающие Ø 10 mm Pinza de agarre Ø 10 mm
	905-006	Spraydüse Getriebeeinheit Dyfuzor do spray'u do jednostki napędowej Spray nozzle gear unit Дюза к передаточному устройству Boquilla de spray para transmisor
	905-007	Spraydüse Motor Dyfuzor do spray'u do silniczka Spray nozzle motor Дюза к мотору Boquilla de spray para motor
	905-010	Myombohrer Ø 10 mm Świder do mięśniaków macicy Ø 10 mm Myoma drill Ø 10 mm Штопор Ø 10 mm Taladro mioma Ø 10 mm
	905-424	Schaft Ø 10 mm Tuba Ø 10 mm Shaft Ø 10 mm Трубка Ø 10 mm Vástago Ø 10 mm

3.6 Zubehör
Akcesoria
Accessories
Принадлежности
Accesorios

134°C
Autoclave
273°F



	<p>905-423</p>	<p>Maulteil Tenaculum Zange Ø 10 mm Szczęki kleszczy tenaculum Ø 10 mm Jaw tenaculum forceps Ø 10 mm Сменная вставка щипцов Tenaculum Ø 10 мм Inserto pinza tenáculo Ø 10 mm</p>
	<p>905-422</p>	<p>Maulteil Greifzange Ø 10 mm Szczęki kleszczy chwytających Ø 10 mm Jaw grasping forceps Ø 10 mm Сменная вставка захватывающих щипцов Ø 10 мм Inserto pinza de agarre Ø 10 mm</p>
	<p>905-421</p>	<p>Handgriff mit zuschaltbarer Raste Uchwyt z przestawną zapadką Handle with selectable latch Рукоятка с переключаемым фиксатором Mango con cremallera integrada y seleccionable</p>
	<p>905-013</p>	<p>Morzellator Motorkabel 3 m Morcelator Kabel 3 m do silniczka Morcellator Motor cable 3 m Кабель к мотору морцеллятора, 3 м Morcelador Cable para motor 3 m</p>
	<p>905-014</p>	<p>Morzellator Reinigungsspray "Nou Clean" Morcelator Spray czyszczący "Nou Clean" Morcellator Cleaning spray "Nou Clean" Спрей для очистки морцеллятора "Nou Clean" Morcelador Spray de limpieza "Nou Clean"</p>
	<p>905-009</p>	<p>Morzellator Dichtung mit Einschnitt / 10 St. Morcelator Uszczelka z nacięciem / 10 szt. Morcellator Sealing with incision / 10 pc. Крестообразный уплотнитель, 10 шт. Morcelador Tapa de estanquidad con incisión / 10 pz.</p>
	<p>905-512</p>	<p>Morzellator Dichtung Ø 12-20 mm / 10 St. Morcelator Uszczelka Ø 12-20 mm / 10 szt. Morcellator Seal Ø 12-20 mm / 10 pc. Обтюратор для морцеллятора Ø 12-20 мм / 10 шт. Junta Morceladori Ø 12-20 mm / 10 pz.</p>
	<p>905-011</p>	<p>Morzellator Dichteinheit Morcelator Obudowa uszczelek Morcellator Gasket holder Держатель прокладки морцеллятора Morcelador Unidad de juntas</p>
	<p>905-008</p>	<p>Morzellator Trägerplatte ERGO 300 Morcelator Płyta nośna ERGO 300 Morcellator Carrier plate ERGO 300 Планшет для хранения морцеллятора ERGO 300 Soporte para Morcelador ERGO 300</p>

4 Pinzetten
Szczypce
Forceps
Пинцеты
Pinzas

4.1	NON-Stick-Gold Bipolare Antihaftpinzetten	4.1	Szczypce bipolarne NON-Stick-Gold	4.1	NON-Stick-Gold Bipolar non-sticking forceps
4.2	Pinzetten bipolar	4.2	Szczypce bipolarne	4.2	Forceps bipolar
4.3	Pinzetten monopolar mit Stecker	4.3	Szczypce monopolarne ze złączem	4.3	Forceps monopolar with connector
4.4	Pinzetten monopolar ohne Stecker	4.4	Szczypce monopolarne bez złącza	4.4	Forceps monopolar without connector
4.1	Биполярные антипригарные пинцеты NON-Stick-Gold	4.1	NON-Stick-Gold Pinzas bipolares no adhesivas	4.2	Pinzas bipolares
4.2	Биполярные пинцеты	4.3	Pinzas monopolares con conector	4.3	Pinzas monopolares con conector
4.3	Монополярные пинцеты с коннектором	4.4	Pinzas monopolares sin conector	4.4	Pinzas monopolares sin conector
4.4	Монополярные пинцеты без коннектора				

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

4.1 NON-Stick-Gold Bipolare Antihaftpinzetten
Szczypce bipolarne nieprzywierające
Bipolar non-sticking forceps
Биполярные антипригарные пинцеты
Pinzas bipolares no adhesivas



Wärmeableitung und Antihaf Funktion
Odprowadzanie ciepła i funkcja nieprzywierająca
Heat removal and non-stick function
Отведения тепла и антипригарные свойства
Dispersión del calor y función antiadherente

550V_p/Вп

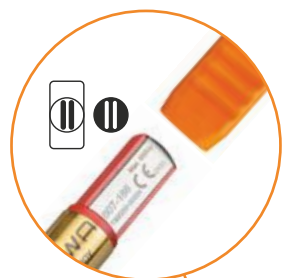


Spannungssicherheit bis 550 Vp
Ochrona przed napięciem do 550 Vp
Voltage safety up to 550 Vp
Безопасность напряжения до 550 Вп
Seguridad de tensión hasta 550 Vp

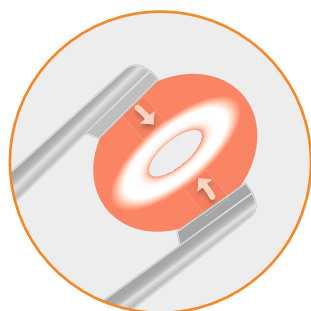
Führungsstift
Bolec naprowadzający
Guide pin
Направляющий выступ
Guía

Reflektionsfreie Oberfläche
Matowa powierzchnia
Non-reflecting surface
Небликующая поверхность
Superficie anti-reflexión

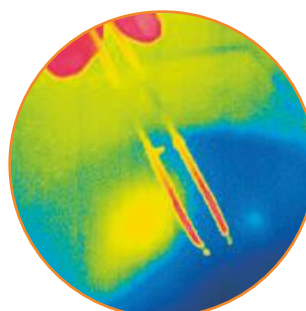
Spitze
Końcówka
Tip
Кончики
Punta



Entsprechende Anschlusskabel siehe Seite 93
 Odpowiednie kable przyłączeniowe na str. 93
 Corresponding connecting cables see page 93
 Соответственные соединительные кабели смотрите на стр. 93
 Cables de conexión correspondientes véase página 93



Blutstillung für Gefäße bis max. 2 mm
 Hemostaza naczyń do 2 mm
 Hemostasis of vessels up to 2 mm
 Гемостаз сосудов до 2 мм
 Hemostasia de vasos hasta 2 mm



Atraumatische Spitze
 Końcówka atraumatyczna
 Atraumatic tip
 Атрауматичные кончики
 Punta atraumática



Gewinkelte Spitze
 Końcówka zagięta
 Angled tip
 Изогнутые кончики
 Punta acodada

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



Micro



Pinzette
 Szczypce
 Forceps
 Пинцеты
 Pinza

4.1 NON-Stick-Gold Bipolare Antihaftpinzetten
 Szczypce bipolarne nieprzywierające
 Bipolar non-sticking forceps
 Биполярные антипригарные пинцеты
 Pinzas bipolares no adhesivas



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	110 mm	6 mm	0,5 mm	607-020
	160 mm	8 mm	1 mm	607-039
	195 mm	8 mm	1 mm	607-040
	160 mm	8 mm	2 mm	607-027
	195 mm	8 mm	2 mm	607-029
	220 mm	8 mm	2 mm	607-030
	270 mm	8 mm	2 mm	607-080
Abgewinkelt Zagięte Angled Изогнутый Ascodada	110 mm	6 mm	0,5 mm	607-021
	160 mm	6 mm	1 mm	607-014
	195 mm	8 mm	1 mm	607-001
	195 mm	8 mm	2 mm	607-007
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	195 mm	6 mm	1 mm	607-002



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	110 mm	6 mm	0.5 mm	607-020



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	160 mm	8 mm	1 mm	607-039
	195 mm	8 mm	1 mm	607-040
	160 mm	8 mm	2 mm	607-027
	195 mm	8 mm	2 mm	607-029
	220 mm	8 mm	2 mm	607-030
	270 mm	8 mm	2 mm	607-080

4.1 NON-Stick-Gold Bipolare Antihaftpinzetten
 Szczypce bipolarne nieprzywierające
 Bipolar non-sticking forceps
 Биполярные антипригарные пинцеты
 Pinzas bipolares no adhesivas

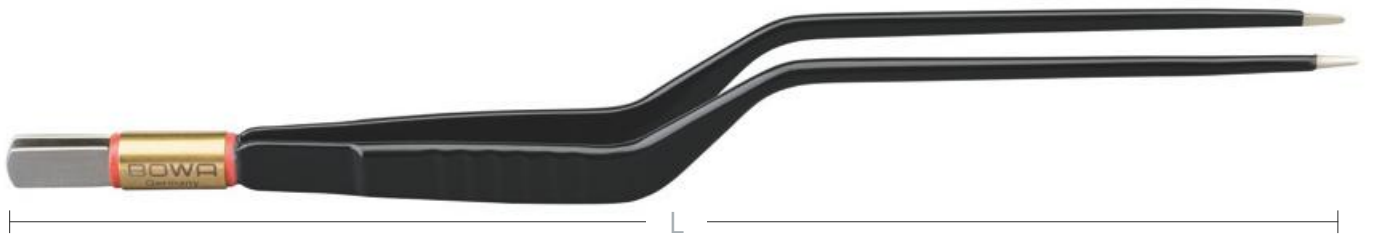
134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt Zagięte Angled Изогнутый Acodada	110 mm	6 mm	0.5 mm	607-021



Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt Zagięte Angled Изогнутый Acodada	160 mm	6 mm	1 mm	607-014
	195 mm	8 mm	1 mm	607-001
	195 mm	8 mm	2 mm	607-007



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	195 mm	6 mm	1 mm	607-002



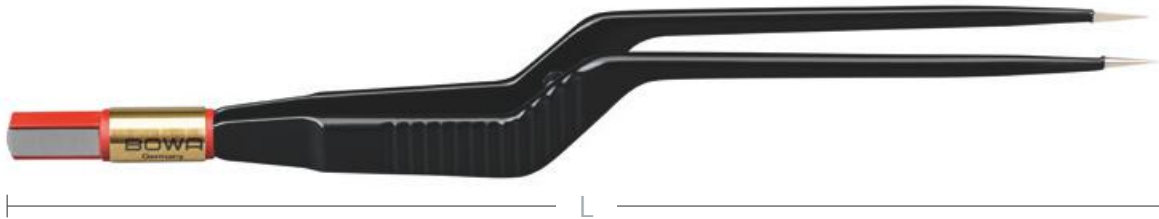
Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	220 mm	9 mm	0,3 mm	607-130
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	160 mm	9 mm	0,3 mm	607-100
	180 mm	9 mm	0,3 mm	607-101
	200 mm	9 mm	0,3 mm	607-102
	220 mm	9 mm	0,3 mm	607-103
	160 mm	9 mm	0,6 mm	607-105
	180 mm	9 mm	0,6 mm	607-106
	200 mm	9 mm	0,6 mm	607-107
	220 mm	9 mm	0,6 mm	607-108
	180 mm	9 mm	1 mm	607-110
	200 mm	9 mm	1 mm	607-111
	220 mm	9 mm	1 mm	607-112
	240 mm	9 mm	1 mm	607-113
	200 mm	9 mm	2 mm	607-115
	220 mm	9 mm	2 mm	607-116
	Bajonett, aufwärts gewinkelt Bagnetowe, zagięte w górę Bayonet, angled up Байонетный, изогнутый вверх Bayoneta, acodadas hacia arriba	200 mm	9 mm	1 mm
220 mm		9 mm	1 mm	607-121
200 mm		9 mm	1 mm	607-122
220 mm		9 mm	1 mm	607-123

4.1 NON-Stick-Gold Bipolare Antihaftpinzetten
 Szczypce bipolarne nieprzywierające
 Bipolar non-sticking forceps
 Биполярные антипригарные пинцеты
 Pinzas bipolares no adhesivas

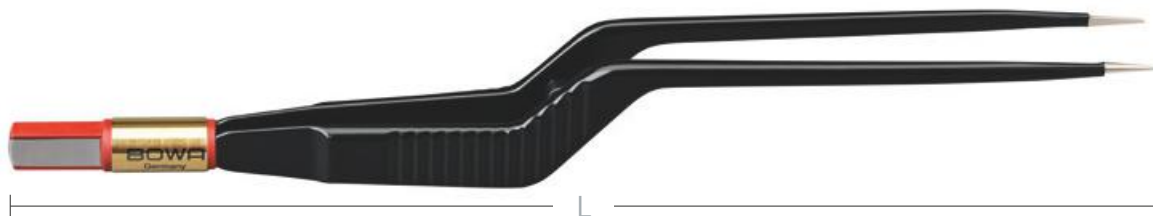
134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	220 mm	9 mm	0,3 mm	607-130



Form / Kształt / Shape / Форма / Forma	L			REF
Vajonett Wagnetowe Bayonet Байонетный Tipo bayoneta	160 mm	9 mm	0,3 mm	607-100
	180 mm	9 mm	0,3 mm	607-101
	200 mm	9 mm	0,3 mm	607-102
	220 mm	9 mm	0,3 mm	607-103



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	160 mm	9 mm	0,6 mm	607-105
	180 mm	9 mm	0,6 mm	607-106
	200 mm	9 mm	0,6 mm	607-107
	220 mm	9 mm	0,6 mm	607-108



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	180 mm	9 mm	1 mm	607-110
	200 mm	9 mm	1 mm	607-111
	220 mm	9 mm	1 mm	607-112
	240 mm	9 mm	1 mm	607-113
	200 mm	9 mm	2 mm	607-115
	220 mm	9 mm	2 mm	607-116

4.1 NON-Stick-Gold Bipolare Antihaftpinzetten
 Szczypce bipolarne nieprzywierające
 Bipolar non-sticking forceps
 Биполярные антипригарные пинцеты
 Pinzas bipolares no adhesivas

134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett, aufwärts gewinkelt Bagnetowe, zagięte w górę Bayonet, angled up Байонетный, изогнутый вверх Bayoneta, acodadas hacia arriba	200 mm	9 mm	1 mm	607-120
	220 mm	9 mm	1 mm	607-121
	200 mm	9 mm	1 mm	607-122
	220 mm	9 mm	1 mm	607-123

4.1 NON-Stick-Gold Pinzetten mit Rundgriffdesign
 Szczypsc z okrągłym uchwytem
 Forceps with rounded grip
 Пинцеты со сферической рукояткой
 Pinzas con diseño de mango redondeado



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	155 mm	9 mm	0,3 mm	607-170
	180 mm	9 mm	0,3 mm	607-171
	155 mm	9 mm	0,6 mm	607-175
	180 mm	9 mm	0,6 mm	607-176
	200 mm	9 mm	0,6 mm	607-177
	180 mm	9 mm	1 mm	607-180
	200 mm	9 mm	1 mm	607-181
	225 mm	9 mm	1 mm	607-182
	200 mm	9 mm	2 mm	607-185
	225 mm	9 mm	2 mm	607-186
Abgewinkelt Zagięte Angled Изогнутый Acodada	225 mm	9 mm	1 mm	607-190
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	180 mm	9 mm	0,3 mm	607-140
	200 mm	9 mm	0,3 mm	607-141
	180 mm	9 mm	0,6 mm	607-145
	200 mm	9 mm	0,6 mm	607-146
	225 mm	9 mm	0,6 mm	607-147
	180 mm	9 mm	1 mm	607-150
	200 mm	9 mm	1 mm	607-151
	225 mm	9 mm	1 mm	607-152
	250 mm	9 mm	1 mm	607-153

4.1 NON-Stick-Gold Pinzetten mit Rundgriffdesign
 Szcypce z okrągłym uchwytem
 Forceps with rounded grip
 Пинцеты со сферической рукояткой
 Pinzas con diseño de mango redondeado

134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	155 mm	9 mm	0,3 mm	607-170
	180 mm	9 mm	0,3 mm	607-171



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	155 mm	9 mm	0,6 mm	607-175
	180 mm	9 mm	0,6 mm	607-176
	200 mm	9 mm	0,6 mm	607-177



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	180 mm	9 mm	1 mm	607-180
	200 mm	9 mm	1 mm	607-181
	225 mm	9 mm	1 mm	607-182
	200 mm	9 mm	2 mm	607-185
	225 mm	9 mm	2 mm	607-186



Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt Zagięte Angled Изогнутый Acodada	225 mm	9 mm	1 mm	607-190

4.1 NON-Stick-Gold Pinzetten mit Rundgriffdesign
 Szczypce z okrągłym uchwytem
 Forceps with rounded grip
 Пинцеты со сферической рукояткой
 Pinzas con diseño de mango redondeado

134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	180 mm	9 mm	0,3 mm	607-140
	200 mm	9 mm	0,3 mm	607-141



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	180 mm	9 mm	0,6 mm	607-145
	200 mm	9 mm	0,6 mm	607-146
	225 mm	9 mm	0,6 mm	607-147





Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	180 mm	9 mm	1 mm	607-150
	200 mm	9 mm	1 mm	607-151
	225 mm	9 mm	1 mm	607-152
	250 mm	9 mm	1 mm	607-153

4.2 Pinzetten bipolar
 Szczypce bipolarne
 Forceps bipolar
 Биполярные пинцеты
 Pinzas bipolares

134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	110 mm	6 mm	● needle tip	605-019
	110 mm	6 mm	0.5 mm	605-020
	160 mm	6 mm	● needle tip	605-011
	160 mm	8 mm	1 mm	605-039
	160 mm	8 mm	2 mm	605-027
	195 mm	8 mm	1 mm	605-040
	195 mm	8 mm	2 mm	605-029
Gerade, Karo Riffelung Proste, profil karo Straight, checker profile Прямой, квадратный профиль Recta, perfil cuadrado	195 mm	8 mm	2 mm	605-057
Gerade Proste Straight Прямой Recta	220 mm	8 mm	1 mm	605-041
	220 mm	8 mm	2 mm	605-030
	270 mm	8 mm	2 mm	605-080
	300 mm	8 mm	2 mm	605-070
Abgewinkelt Zagięte Angled Изогнутый Acodada	110 mm	6 mm	● needle tip	605-023
	110 mm	6 mm	0.5 mm	605-021
	160 mm	6 mm	● needle tip	605-036
	160 mm	6 mm	0.5 mm	605-013
	160 mm	6 mm	1 mm	605-014
	195 mm	8 mm	1 mm	605-001
	195 mm	8 mm	2 mm	605-007



Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt, Karo Riffelung Zagięte, profil karo Angled, checker profile Изогнутый, квадратный профиль Acodada, perfil cuadrado	195 mm	8 mm	2 mm	605-058
Abgewinkelt Zagięte Angled Изогнутый Acodada	220 mm	8 mm	1 mm	605-024
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	165 mm	6 mm	0.5 mm	605-033
	165 mm	6 mm	1 mm	605-018
	195 mm	6 mm	1 mm	605-002
	195 mm	8 mm	2 mm	605-034
Bajonett, Karo Riffelung Bagnetowe, profil karo Bayonet, checker profile Байонетный, квадратный профиль Tipo bayoneta, perfil cuadrado	195 mm	8 mm	2 mm	605-059
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	220 mm	6 mm	0.5 mm	605-031
Bajonett, abgewinkelt Bagnetowe, zagięte Bayonet, angled Байонетный, изогнутый Tipo bayoneta, acodada	220 mm	6 mm	1 mm	605-063

4.2 Pinzetten bipolar
 Szczypce bipolarne
 Forceps bipolar
 Биполярные пинцеты
 Pinzas bipolares

134°C
 Autoclave
 273°F



Form / Kszalt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	110 mm	6 mm	● needle tip	605-019
	110 mm	6 mm	0.5 mm	605-020



Form / Kszalt / Shape / Форма / Forma	L			REF
Gerade Proste Straight Прямой Recta	160 mm	6 mm	● needle tip	605-011
	160 mm	8 mm	1 mm	605-039
	160 mm	8 mm	2 mm	605-027
	195 mm	8 mm	1 mm	605-040
	195 mm	8 mm	2 mm	605-029
Gerade, Karo Riffelung Proste, profil karo Straight, checker profile Прямой, квадратный профиль Recta, perfil cuadrado	195 mm	8 mm	2 mm	605-057
Gerade Proste Straight Прямой Recta	220 mm	8 mm	1 mm	605-041
	220 mm	8 mm	2 mm	605-030
	270 mm	8 mm	2 mm	605-080
	300 mm	8 mm	2 mm	605-070



Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt Zagięte Angled Изогнутый Acodada	110 mm	6 mm	● needle tip	605-023
	110 mm	6 mm	0.5 mm	605-021





Form / Kształt / Shape / Форма / Forma	L			REF
Abgewinkelt Zagięte Angled Изогнутый Acodada	160 mm	6 mm	● needle tip	605-036
	160 mm	6 mm	0.5 mm	605-013
	160 mm	6 mm	1 mm	605-014
	195 mm	8 mm	1 mm	605-001
	195 mm	8 mm	2 mm	605-007
Abgewinkelt, Karo Riffelung Zagięte, profil karo Angled, checker profile Изогнутый, квадратный профиль Acodada, perfil cuadrado	195 mm	8 mm	2 mm	605-058
Abgewinkelt Zagięte Angled Изогнутый Acodada	220 mm	8 mm	1 mm	605-024



4.2 Pinzetten bipolar
 Szczypce bipolarne
 Forceps bipolar
 Биполярные пинцеты
 Pinzas bipolares

134°C
 Autoclave
 273°F



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	165 mm	6 mm	0.5 mm	605-033
	165 mm	6 mm	1 mm	605-018
	195 mm	6 mm	1 mm	605-002
	195 mm	8 mm	2 mm	605-034
Bajonett, Karo Riffelung Bagnetowe, profil karo Bayonet, checker profile Байонетный, квадратный профиль Tipo bayoneta, perfil cuadrado	195 mm	8 mm	2 mm	605-059
Bajonett Bagnetowe Bayonet Байонетный Tipo bayoneta	220 mm	6 mm	0.5 mm	605-031



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett, abgewinkelt Bagnetowe, zagięte Bayonet, angled Байонетный, изогнутый Tipo bayoneta, acodada	220 mm	6 mm	1 mm	605-063

Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato						
	COMFORT	BOWA Erbe International* Martin International Valleylab Conmed	Erbe VIO / ICC / ACC Erbe T-Serie	Erbe VIO International*	Martin	
Instrumentenseitig / Po stronie instrumentu / At the instrument / К инструменту / Lado del instrumento		101-140 (4.5 m)	351-040 (4.5 m)	101-040 (4.0 m)	353-040 (4.5 m)	287-040 (4.5 m)
* Abhängig von der jeweiligen Buchsenkonfiguration * Zależy od indywidualnej konfiguracji gniazda * Depending on the respective socket configuration			* В зависимости от определённой конфигурации разъемов * Según la configuración de enchufes respectiva			

4.3 Pinzetten monopolar mit Stecker
Szczypce monopolarne ze złączem
Forceps monopolar with connector
Монопольные пинцеты с коннектором
Pinzas monopolares con conector

134°C
Autoclave
273°F



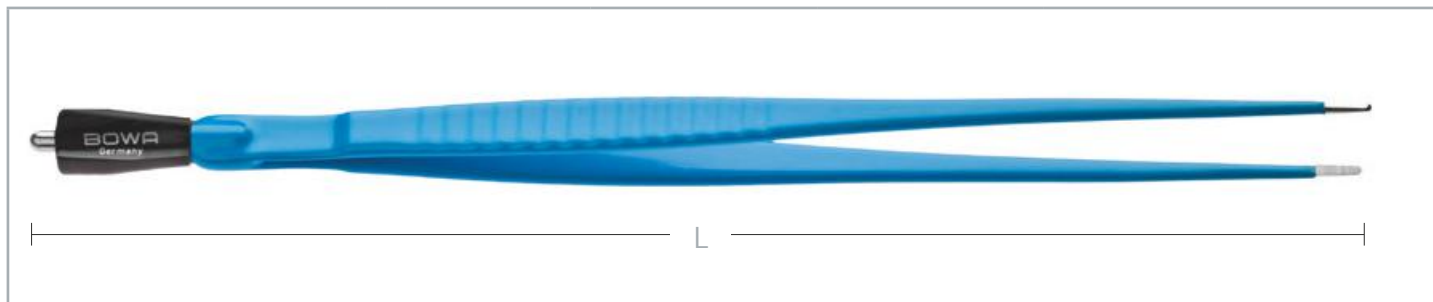
Sicher – Schützt vor Verbrennungen
Bezpieczne – Ochrona przed poparzeniem
Safe – Protection against burns
Безопасно – защита от ожогов
Seguro – Protege de quemaduras

3500V_p/Вп

Reflektionsfreie Oberfläche
Matowa powierzchnia
Non-reflecting surface
Небликующая поверхность
Superficie anti-reflexión

Mit Stecker
Ze złączem
With connector
С коннектором
Con conector

Anatomische Spitze
Końcówka anatomiczna
Anatomic tip
Анатомические кончики
Punta anatómica



Form / Kształt / Shape / Форма / Forma	L			REF
Quer Riffelung Profil poprzecznie prążkowany Cross-striped profile Бранши с поперечной насечкой Perfil rayado horizontal	195 mm	8 mm	1 mm	610-018
	195 mm	8 mm	2 mm	610-017
	220 mm	8 mm	1 mm	610-021
	220 mm	8 mm	2 mm	610-019
	270 mm	8 mm	2 mm	610-025



Form / Kształt / Shape / Форма / Forma	L			REF
Bajonett, Quer Riffelung Bagnetowe, profil poprzecznie prążkowany Bayonet, cross-striped profile Байонетный, бранши с поперечной насечкой Tipo bayoneta, perfil rayado horizontal	195 mm	8 mm	2 mm	610-016

Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato

Erbe VIO / ICC / ACC	4 mm Ø Buchse Gniazdo Ø 4 mm 4 mm Ø socket 4 mm Ø разъём Casquillo 4 mm Ø	Erbe international Martin International

Instrumentenseitig Po stronie instrumentu At the instrument Со стороны инструмента Lado del instrumento		101-051 (4.5 m)	280-050 (4.5 m)	360-050 (4.5 m)
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4.4 Pinzetten monopolar ohne Stecker
Szczypce monopolarne bez złącza
Forceps monopolar without connector
Монополярные пинцеты без коннектора
Pinzas monopolares sin conector

134°C
Autoclave
273°F



Sicher – Schützt vor Verbrennungen
Bezpieczne – Ochrona przed poparzeniem
Safe – Protection against burns
Безопасно – защита от ожогов
Seguro – Protege de quemaduras

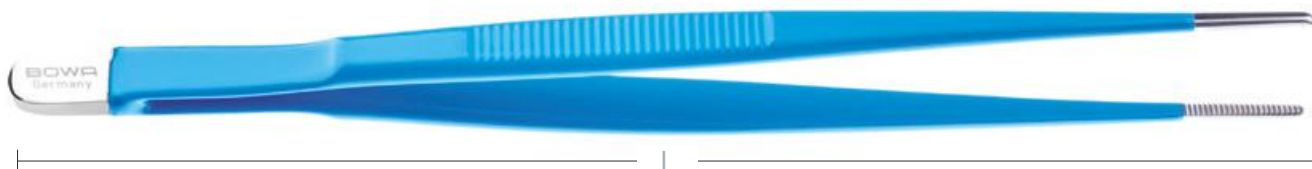
Ohne Stecker
Bez złącza
Without connector
Без коннектора
Sin conector

3500V_p/Вп

Reflektionsfreie Oberfläche
Matowa powierzchnia
Non-reflecting surface
Небликующая поверхность
Superficie anti-reflexión

Chirurgische Spitze
Końcówka chirurgiczna
Surgical tip
Хирургические кончики
Punta quirúrgica

Anatomische Spitze
Końcówka anatomiczna
Anatomic tip
Анатомические кончики
Punta anatómica



Form / Kształt / Shape / Форма / Forma	L			REF
Anatomisch	180 mm	18 mm	2.0 mm	612-018
Anatomiczne	200 mm	18 mm	2.2 mm	612-021
Anatomic	250 mm	18 mm	2.4 mm	612-025
Анатомический				
Anatómica				



Form / Kształt / Shape / Форма / Forma	L			REF
Chirurgisch	180 mm	18 mm	2.0 mm	612-118
Chirurgiczne	200 mm	18 mm	2.2 mm	612-121
Surgical	250 mm	18 mm	2.4 mm	612-125
Хирургический				
Quirúrgica				

5 BiZZER® Bipolare Schere
 Nożyczki bipolarne
 Bipolar scissors
 Ножницы биполярные
 Tijeras bipolares

5	BiZZER® Bipolare Schere	5	BiZZER® Nożyczki bipolarne	5	BiZZER® Bipolar scissors
5	BiZZER® Ножницы биполярные		5 BiZZER® Tijeras bipolares		

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

BiZZER® Bipolare Schere
 Nożyczki bipolarne
 Bipolar scissors
 Ножницы биполярные
 Tijeras bipolares



Verbesserte ergonomische Handhabung
 Ulepszony, ergonomiczny uchwyt
 Improved ergonomic handling
 Улучшенная эргономика
 Manejo ergonómico mejorado

200 V_p/Вп

Universell konnektierbar
 Uniwersalne możliwości podłączenia
 Universally connectable
 Универсальное подключение
 Universalmente conectable

Balancierter Schwerpunkt
 Wyważony punkt ciężkości
 Balanced centre of gravity
 Сбалансированный центр тяжести
 Centro de gravedad equilibrado



Ermüdungsfreie Handhabung
 Praca bez zmęczenia
 Effortless handling
 Лёгкое управление
 Manejo sin fatiga

Verschiedene Ausführungen
 Różne modele
 Various versions
 Различные модели
 Diferentes modelos

Gebogenes Scherenblatt
 Zakrzywione ostrze
 Curved scissor blade
 Изогнутые лезвия ножниц
 Hoja de la tijera curva

Spezial-Oberflächenhärtung
Specjalnie hartowana powierzchnia
Special surface hardening
Специальное усиление поверхности
Endurecimiento superficial especial

Antihftbeschichtung
Powłoka nieprzywierająca
Non-stick coating
Антипригарное покрытие
Revestimiento antiadherente



! Feine Keramibeschichtung
Cienka powłoka ceramiczna
Fine ceramic coating
Тонкое керамическое покрытие
Revestimiento fino de cerámica



Flächige Koagulation
Koagulación powierzchniowa
Zone coagulation
Зона коагуляции
Coagulación superficial



Koagulieren vor dem Schneiden
Koagulowanie przed cięciem
Coagulation prior to cutting
Коагуляция перед разрезом
Coagulación antes del corte



Koagulieren während des Schneidens
Koagulowanie podczas cięcia
Coagulation during cutting
Коагуляция во время разреза
Coagulación durante el corte



Punktförmige Koagulation
Koagulación puntiforme
Pinpoint coagulation
Точечная коагуляция
Coagulación puntiforme

Empfohlene Modi bei BOWA ARC 400
Tryby rekomendowane dla BOWA ARC 400
Recommended modes for the BOWA ARC 400
Рекомендованные режимы для BOWA ARC 400
Modos recomendados con BOWA ARC 400



BIZZER® COAG



BIZZER® CUT



COAG



Metzenbaum



Form Kształt Shape Форма Forma	L	STANDARD ohne Kabel bez kabla without cable без кабеля sin cable	COMFORT mit Kabel 4.5 m z kablem 4.5 m with 4.5 m cable с кабелем 4.5 м con cable 4.5 m
Gebogen, schlank Zagięty, smukły Curved, precise Изогнутые, прецизионные Acodado, delgado	180 mm	797-180	797-580 (4.5 m)
	230 mm	797-230	797-630 (4.5 m)
	280 mm	797-280	797-680 (4.5 m)

Metzenbaum fein




Form Kształt Shape Форма Forma	L	STANDARD ohne Kabel bez kabla without cable без кабеля sin cable	COMFORT mit Kabel 4.5 m z kablem 4.5 m with 4.5 m cable с кабелем 4.5 м con cable 4.5 m
Gebogen, fein Zagięty, drobny Curved, fine Изогнутые тонкие Acodado, fino	145 mm	798-145	798-545 (4.5 m)
	180 mm	798-180	798-580 (4.5 m)
	230 mm	798-230	798-630 (4.5 m)
	280 mm	798-280	798-680 (4.5 m)




Stevens







Form Kształt Shape Форма Forma	L	STANDARD ohne Kabel bez kabla without cable без кабеля sin cable	COMFORT mit Kabel 4.5 m z kablem 4.5 m with 4.5 m cable с кабелем 4.5 м con cable 4.5 m	
Gebogen, spitz Zagięty, spiczasty Curved, pointed Изогнутые, остроконечные Acodada, punta	145 mm	795-145	795-545 (4.5 m)	
	180 mm	795-180	795-580 (4.5 m)	

Mayo



Form Kształt Shape Форма Forma	L	STANDARD ohne Kabel bez kabla without cable без кабеля sin cable	COMFORT mit Kabel 4.5 m z kablem 4.5 m with 4.5 m cable с кабелем 4.5 м con cable 4.5 m	
Gebogen Zagięty Curved Изогнутые Acodado	170 mm	796-170	796-570 (4.5 m)	

Geräteseitig / Po stronie urządzenia / At the unit / Со стороны аппарата / En el lado del aparato

Instrumentenseitig Po stronie instrumentu At the instrument Со стороны инструмента Lado del instrumento				
		BOWA Valleylab	Erbe	Martin
		378-045 (4.5 m)	378-145 (4.5 m)	378-245 (4.5 m)

6 LIGATION Gefäßversiegelung
 Zamykanie naczyń
 Vascular sealing
 Лигирование сосудов
 Sellado vascular

6.1	ERGO 315R
6.2	ERGO 310D
6.3	NightKNIFE®
6.4	LIGATOR®
6.5	TissueSeal® PLUS

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

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Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

6.1 ERGO 315R



360° Rotation
Obrót o 360°
360° rotation
Вращение на 360°
Rotación de 360°

Handschalter
Włącznik ręczny
Manual switch
Ручной переключатель
Interruptor manual

Schneidefunktion
Funkcja cięcia
Cutting function
Функция сечения
Función de corte

Multifunktionshebel: Dissezieren, Greifen, Präparieren
Dźwignia wielofunkcyjna: dyssekcja, chwytanie, preparowanie
Multifunction lever/trigger: opening, closing and locking
Многофункциональный рычаг: диссекции, захвата, рассечения.
Mango/disparador multifunción: abrir, cerrar, fijar



Keramik-Mikroverzahnung
Ceramiczne mikroząbki
Ceramic micro-teeth
Керамические микрозубцы
Microdentado de cerámica

Reflektionsarme Oberfläche
Powierzchnia słabo odbijająca światło
Low-reflection surface
Слабоотражающая поверхность
Superficies antirreflejo

Gewebestopp
Tissue Stop
Tissue stop
Ограничитель
Tope de tejido

Minimale Thermal Spread
Minimalne oddziaływanie termiczne
Minimal thermal spread
Минимальное распространение тепла
Mínima difusión térmica

Empfohlene Modi bei BOWA ARC 400
Tryby rekomendowane dla BOWA ARC 400
Recommended modes for the BOWA ARC 400
Режимы рекомендованные для BOWA ARC 400
Modos recomendados con BOWA ARC 400



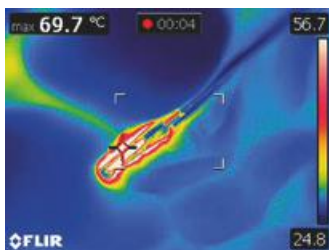
LIGATION



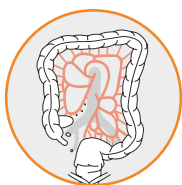
ARCSeal



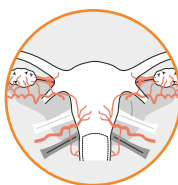
Individuell positionierbar
Indywidualne pozycjonowanie
Individual positioning
Индивидуальная настройка
Posicionable individualmente



Filigrane Instrumentenspitze
Drobna końcówka instrumentu
Fine instrument tip
Тонкий наконечник инструмента
Estilizada punta del instrumento



Viszeralchirurgie
Chirurgia wisceralna
Visceral Surgery
Висцеральная хирургия
Cirugia visceral



Gynäkologie
Ginekologia
Gynaecology
Гинекология
Ginecología





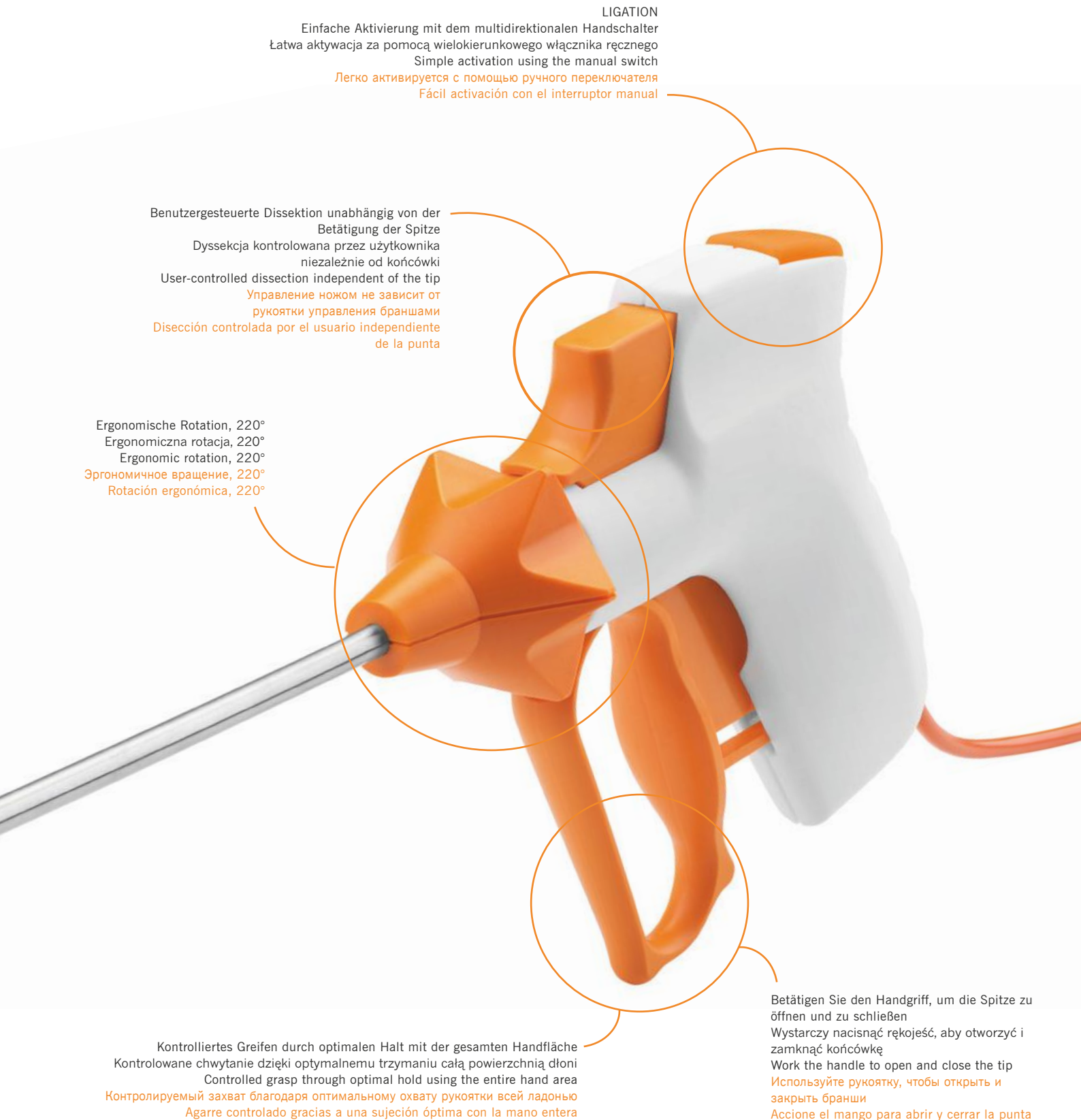
Urologie
Urologia
Urology
Урология
Urología

6.1 ERGO 315R mit Aufbereitungssieb
z koszem do sterylizacji
with reprocessing basket
с контейнером для стерилизации
con bandeja



		Kompletteinstrument mit Aufbereitungssieb Kompletny instrument z koszem do sterylizacji Complete instrument with reprocessing basket Инструмент в наборе с контейнером для стерилизации Instrumento completo con bandeja		Kompletteinstrument mit Aufbereitungssieb Kompletny instrument z koszem do sterylizacji Complete instrument with reprocessing basket Инструмент в наборе с контейнером для стерилизации Instrumento completo con bandeja	
		275 mm		360 mm	
		770-552		770-553	
ERGO 315R	275 mm	770-502	●		
	360 mm	770-503		●	
Aufbereitungssieb Kosz do sterylizacji Reprocessing basket контейнер для стерилизации Bandeja		773-982	●	●	
Deckel für Sieb Pokrywa kosza Tray lid крышка для контейнера Tapa para bandeja		773-983	●	●	
Reinigungsadapter Set Adapter do czyszczenia zestaw Cleaning adapter kit Адаптеры для чистки, набор Juego de adaptadores de limpieza		723-050	●	●	
Reinigungsbürsten Set (4 St.) Szczotki czyszczące zestaw (4 szt.) Cleaning brushes kit (quantity 4) Щетки для чистки (4 шт.) Juego de cepillos de limpieza (4 Ud.)		723-000	●	●	

	723-051	Reinigungsadapter Maulteil/Handgriff Adapter do czyszczenia uchwytu/szczęki Cleaning adapter handle/jaw Адаптер для чистки рукоятки/рабочей вставки Adaptador de limpieza mango/mandíbula
	723-052	Reinigungsadapter Schubrohr Adapter do czyszczenia prowadnicy Cleaning adapter push rod Адаптер для чистки толкающего стержня Adaptador de limpieza tubo de empuje



LIGATION

Einfache Aktivierung mit dem multidirektionalen Handschalter
Łatwa aktywacja za pomocą wielokierunkowego włącznika ręcznego
Simple activation using the manual switch
Легко активируется с помощью ручного переключателя
Fácil activación con el interruptor manual

Benutzergesteuerte Dissektion unabhängig von der
Betätigung der Spitze
Dyssekcja kontrolowana przez użytkownika
niezależnie od końcówki
User-controlled dissection independent of the tip
Управление ножом не зависит от
рукоятки управления браншами
Dissección controlada por el usuario independiente
de la punta

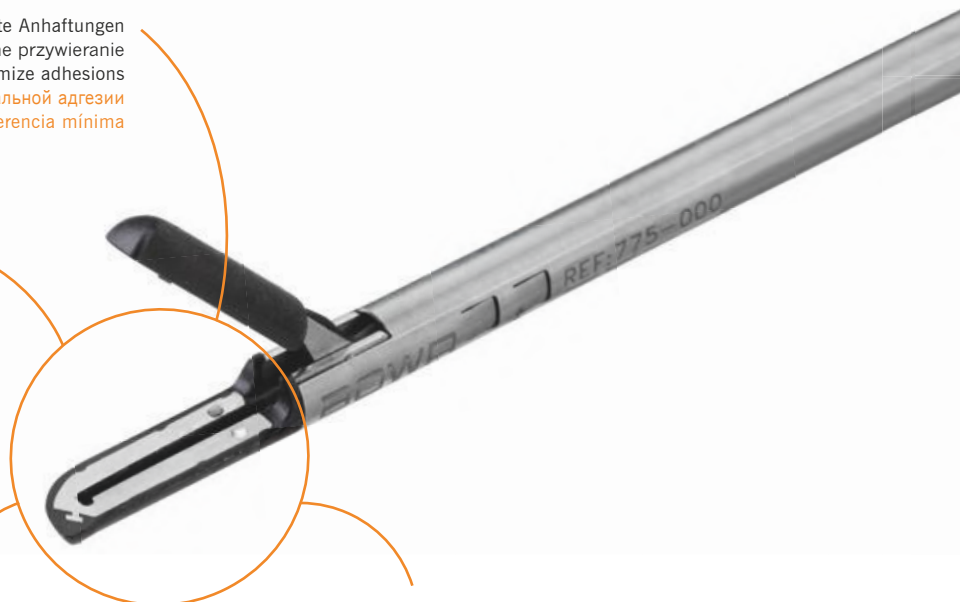
Ergonomische Rotation, 220°
Ergonomiczna rotacja, 220°
Ergonomic rotation, 220°
Эргономичное вращение, 220°
Rotación ergonómica, 220°

Kontrolliertes Greifen durch optimalen Halt mit der gesamten Handfläche
Kontrolowane chwytanie dzięki optymalnemu trzymaniu całą powierzchnią dłoni
Controlled grasp through optimal hold using the entire hand area
Контролируемый захват благодаря оптимальному охвату рукоятки всей ладонью
Agarre controlado gracias a una sujeción óptima con la mano entera

Betätigen Sie den Handgriff, um die Spitze zu
öffnen und zu schließen
Wystarczy nacisnąć rękojeść, aby otworzyć i
zamknąć końcówkę
Work the handle to open and close the tip
Используйте рукоятку, чтобы открыть и
закрыть бранши
Accione el mango para abrir y cerrar la punta

Glatte Oberflächen für minimierte Anhaftungen
 Gładkie powierzchnie zapewniające minimalne przywieranie
 Smooth surfaces to minimize adhesions
 Гладкие поверхности для минимальной адгезии
 Superficies lisas para una adherencia mínima

Spiegel- und reflektionsfrei
 Bez odbić i refleksów
 Non-glare and non-reflecting
 Отсутствие бликов и отражений
 Sin reflejo ni reflexión



Isolation der gesamten Oberfläche der Elektroden
 Termiczna optymalizacja dzięki izolacji całej powierzchni elektrod
 Insulation of the entire electrode surface
 Оптимальные термические характеристики достигаются благодаря изоляции всей поверхности электродов
 Aislamiento de toda la superficie de los electrodos

Minimaler Thermal Spread
 Minimalne oddziaływanie termiczne
 Minimum thermal spread
 Минимальное тепловое распространение
 Mínima difusión térmica



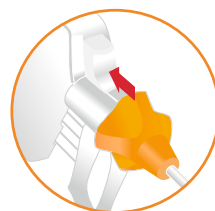
Gewebe greifen
 Chwycenie tkanki
 Grasp the tissue
 Захватить ткань
 Agarrar el tejido



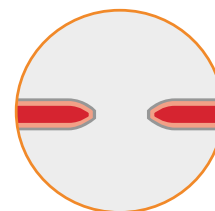
ERGO 310D schließen und einrasten
 Zamknięcie i zablokowanie ERGO 310D
 Close and engage the ERGO 310D
 Закрыть и зафиксировать инструмент ERGO 310D
 Cerrar ERGO 310D y enclavar



ERGO 310D aktivieren bis das Signal ertönt
 Uaktywnienie ERGO 310D do czasu, aż rozlegnie się sygnał
 Activate the ERGO 310D until the signal sounds
 Активировать ERGO 310D до появления звукового сигнала
 Activar ERGO 310D hasta que suene la señal



Versiegeltes Gewebe mit dem integrierten Messer durchtrennen
 Przecięcie zamkniętej tkanki zintegrowanym nożem
 Separate the sealed tissue using the integrated blade
 Рассечь встроенным ножом заваренную ткань
 Cortar el tejido sellado con la cuchilla integrada



ERGO 310D öffnen
 Otwarcie ERGO 310D
 Open the ERGO 310D
 Открыть инструмент ERGO 310D
 Abrir ERGO 310D

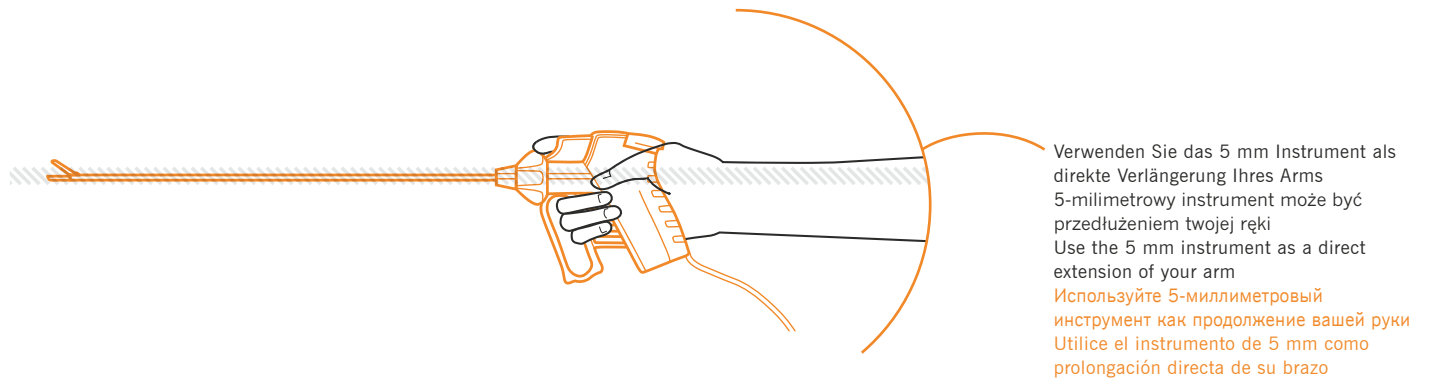
Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Режимы рекомендованные для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



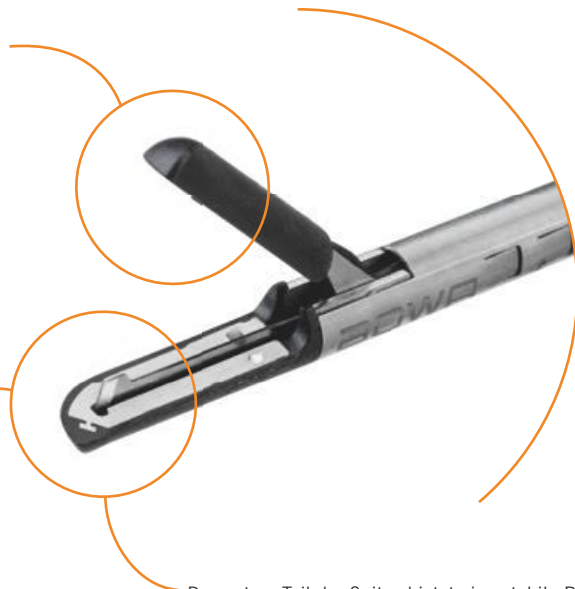
LIGATION



ARCSeal

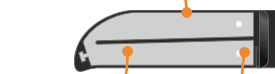


Die abgerundete Geometrie der Spitze erlaubt eine Vielzahl an PräparationsTechniken
 Zaokrąglona geometria końcówki umożliwia zastosowanie szeregu technik preparacji
 The rounded geometry of the tip allows for numerous preparation techniques
 Особенная геометрия наконечника позволяет применять различные способы препарирования
 La geometría redondeada de la punta permite utilizar un gran número de técnicas de preparación

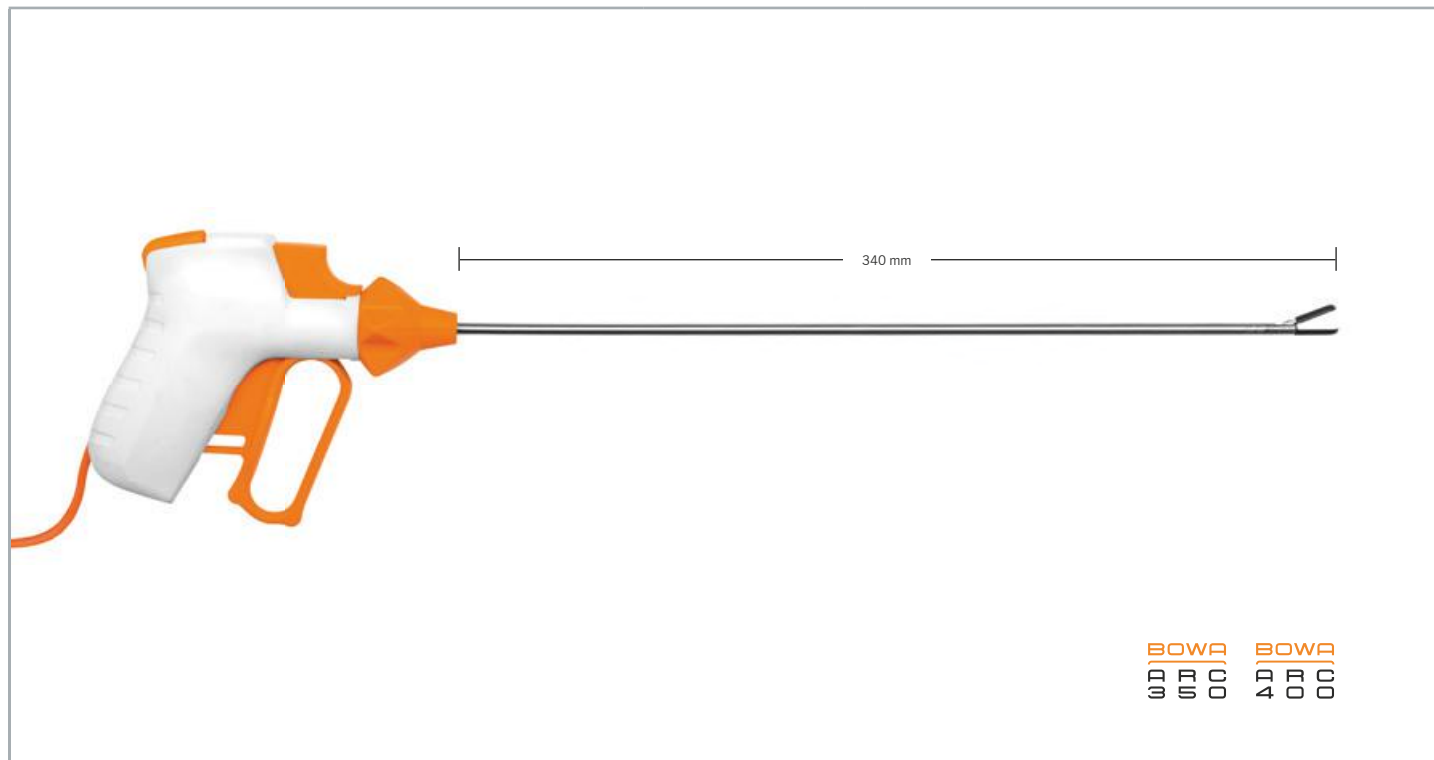


Isolierte Oberflächen
 Izolowane powierzchnie
 Insulated surfaces
 Изолированные поверхности
 Superficies aisladas

Aktive Elektrode
 Elektroda aktywna
 Active electrode
 Активный электрод
 Electrodo activo



Keramik Mikroverzahnung für optimalen Halt am Gewebe
 Ceramiczne mikroząbki dla optymalnego trzymania tkanki
 Ceramic-serration for optimal hold on tissue
 Керамические микрозубцы для оптимального удерживания ткани
 Microdientes cerámicas para una sujeción óptima en el tejido

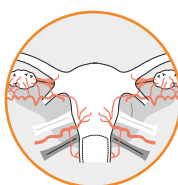


BOWA **BOWA**
A A C **A A C**
3 5 0 **4 0 0**

	<p>775-000</p>	<p>ERGO 310D, Laparoskopisches Ligationsinstrument, Ø 5 mm, 340 mm (5 Stk.) Laparoskopowy instrument do ligacji, Ø 5 mm, 340 mm (5 szt.) Laparoscopic vessel sealer, Ø 5 mm, 340 mm (5 pcs.) Лигирующий инструмент, лапароскопический, Ø 5 мм, 340 мм (5 шт.) Sellador de vasos laparoscópico, Ø 5 mm, 340 mm (5 uds.)</p>
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Viszeralchirurgie
Chirurgia wisceralna
Visceral Surgery
Висцеральная хирургия
Cirurgia visceral



Gynäkologie
Ginekologia
Gynaecology
Гинекология
Ginecología



Urologie
Urologia
Urology
Урология
Urología

6.3 NightKNIFE®



Zeitsparend – Kostensparend – Fremdkörperfrei
Oszczędność czasu – Oszczędność kosztów – Brak ciał obcych
Time-saving – Cost-saving – Debris-free
Экономия времени – средств – отсутствие инородных тел
Ahorro de tiempo – Ahorro de costes – Sin residuos



10 mm

Isolierte Oberflächen für geringen Thermal Spread
Izolowane powierzchnie ograniczają oddziaływanie termiczne
Insulated surfaces for less thermal spread
Изолированные поверхности для минимального распространения тепла
Superficies aisladas para una menor propagación lateral del calor

Integrierter Schneidmechanismus erspart Instrumentenwechsel
Zintegrowany mechanizm tnący oszczędza czas na zmianę instrumentu
Integrated cutting mechanism saves having to change instruments
Встроенный режущий механизм избавляет от необходимости менять инструменты
Mecanismo de corte integrado para ahorrar el cambio de instrumentos



Minimaler Thermal Spread
Minimalne rozprzestrzenianie ciepła
Minimal thermal spread
Минимальное распространение тепла
Propagación térmica mínima

Atraumatische Spitzen für sichere Präparation
Atraumatyczne końcówki do bezpiecznej preparacji
Atraumatic tips for secure dissecting
Атравматичные кончики для безопасной диссекции
Puntas atraumaticas para la preparación segura

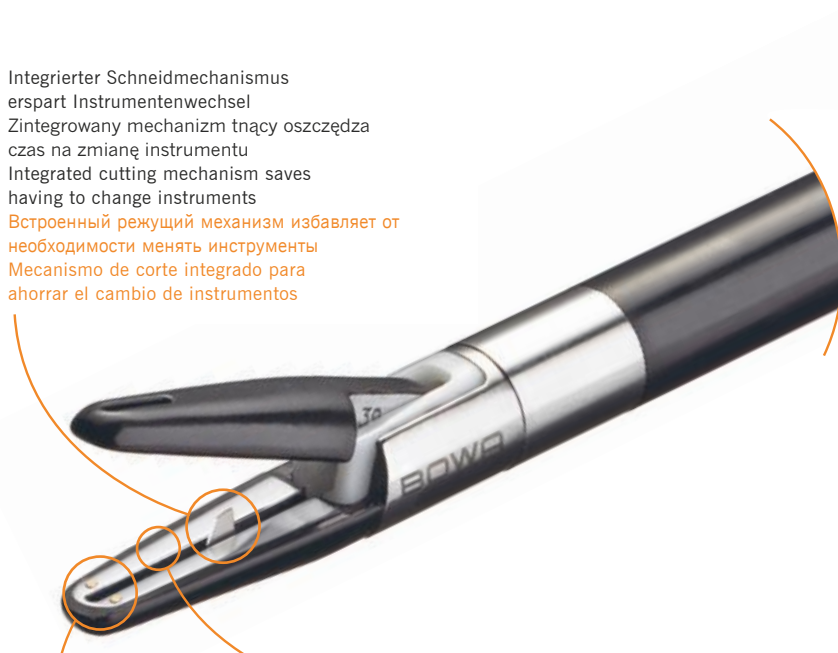
Empfohlener Modus bei BOWA ARC 400
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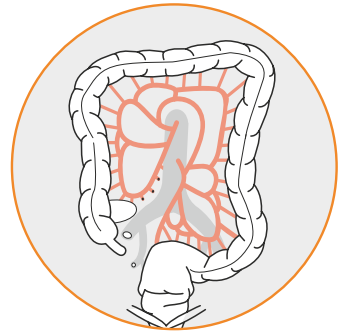
LIGATION

Integrierter Schneidmechanismus
erspart Instrumentenwechsel
Zintegrowany mechanizm tnący oszczędza
czas na zmianę instrumentu
Integrated cutting mechanism
having to change instruments

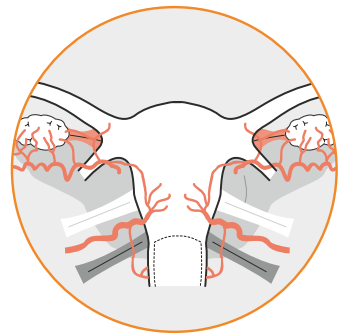
Встроенный режущий механизм избавляет от
необходимости менять инструменты
Mecanismo de corte integrado para
ahorrar el cambio de instrumentos



Viszeralchirurgie
Chirurgia wisceralna
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Cirugía visceral



Gynäkologie
Ginekologia
Gynaecology
Гинекология
Ginecología

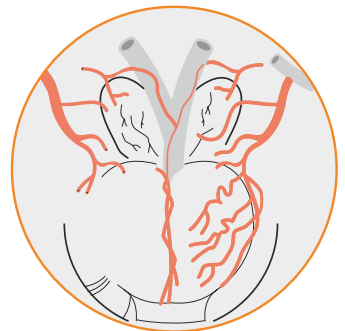


Gewebehaltepunkte
Wypustki do chwytania tkanki
Points for tissue grip
Микрозубцы для захвата ткани
Puntos de apoyo del tejido

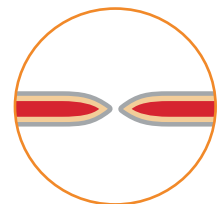
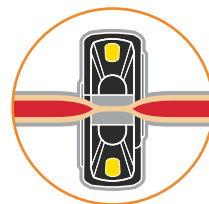
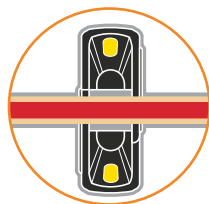
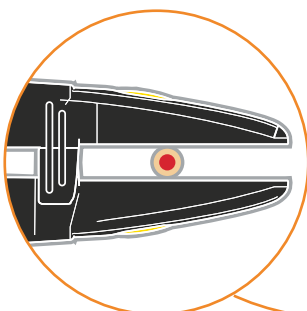
Antihftbeschichtung
Powłoka nieprzywierająca
Non-stick coating
Антипригарное покрытие
Revestimiento antiadherente



Urologie
Urologia
Urology
Урология
Urología



Sicherer Klängenwechsel mit Clipapplikator
Bezpieczna zmiana ostrza za pomocą aplikatora
Safe blade change due to clip applicator
Безопасная смена ножа с помощью аппликатора
Cambio seguro de la cuchilla con el aplicador





Gefäße bis 7 mm und 700 mm Hg
Naczynia do 7 mm i ciśnienie do 700 mm Hg
Vessels up to 7 mm and 700 mm Hg burst
Сосуды до 7 мм и до 700 мм рт.ст.
Vasos de hasta 7 mm y 700 mm Hg Burst





	<p>360 mm</p> <p>Ø 10 mm</p>
770-300	<p>NightKNIFE® Handgriff, Schaftrohr, Maulteil, 360 mm, COMFORT, Kabel 4.5 m NightKNIFE® uchwyt, tuba, szczęki, 360 mm, COMFORT, kabel 4.5 m NightKNIFE® handle, shaft tube, jaw, 360 mm, COMFORT, cable, 4.5 m NightKNIFE® рукоятка, стержневая трубка, рабочая вставка, 360 мм, COMFORT, кабель 4.5 м NightKNIFE® mango, tubo, inserto, 360 mm, COMFORT, cable 4.5 m</p>
770-200	<p>NightKNIFE® Handgriff, Schaftrohr, Maulteil, 200 mm, COMFORT, Kabel, 4.5 m NightKNIFE® uchwyt, tuba, szczęki, 200 mm, COMFORT, kabel 4.5 m NightKNIFE® handle, shaft tube, jaw, 200 mm, COMFORT, cable, 4.5 m NightKNIFE® рукоятка, стержневая трубка, рабочая вставка, 200 мм, COMFORT, кабель 4.5 м NightKNIFE® mango, tubo, inserto, 200 mm, COMFORT, cable 4.5 m</p>
770-301	<p>NightKNIFE® Handgriff, Schaftrohr, Maulteil, auswechselbares Messer, 360 mm, COMFORT, Kabel, 4.5 m NightKNIFE® uchwyt, tuba, szczęki, wymienny nóż, 360 mm, COMFORT, kabel 4.5 m NightKNIFE® handle, shaft tube, jaw, exchangeable knife, 360 mm, COMFORT, cable, 4.5 m NightKNIFE® рукоятка, стержневая трубка, рабочая вставка, сменный нож, 360 мм, COMFORT, кабель 4.5 м NightKNIFE® mango, tubo, inserto, cuchillo recambiable, 360 mm, COMFORT, cable 4.5 m</p>
770-201	<p>NightKNIFE® Handgriff, Schaftrohr, Maulteil, auswechselbares Messer, 200 mm, COMFORT, Kabel, 4.5 m NightKNIFE® uchwyt, tuba, szczęki, wymienny nóż, 200 mm, COMFORT, kabel 4.5 m NightKNIFE® handle, shaft tube, jaw, exchangeable knife, 200 mm, COMFORT, cable, 4.5 m NightKNIFE® рукоятка, стержневая трубка, рабочая вставка, сменный нож, 200 мм, COMFORT, кабель 4.5 м NightKNIFE® mango, tubo, inserto, cuchillo recambiable, 200 mm, COMFORT, cable 4.5 m</p>
	770-000
	<p>NightKNIFE® & LIGATOR® Handgriff, COMFORT, Kabel, 4.5 m NightKNIFE® & LIGATOR® uchwyt, COMFORT, kabel 4.5 m NightKNIFE® & LIGATOR® Handle, COMFORT, cable, 4.5 m NightKNIFE® & LIGATOR® рукоятка, COMFORT, кабель 4.5 м NightKNIFE® & LIGATOR® Mango, COMFORT, cable 4.5 m</p>





	770-336	Schaftrohr, 360 mm Tuba, 360 mm Shaft tube, 360 mm Стержневая трубка 360 мм Tubo, 360 mm
	770-320	Schaftrohr, 200 mm Tuba, 200 mm Shaft tube, 200 mm Стержневая трубка 200 мм Tubo, 200 mm

	771-136	NightKNIFE® Maulteil, gerade, 360 mm NightKNIFE® szczęki, proste, 360 mm NightKNIFE® jaw, straight, 360 mm NightKNIFE® рабочая вставка, прямая 360 мм Inserto NightKNIFE®, recto, 360 mm
	771-137	NightKNIFE® Maulteil, gerade, auswechselbares Messer, 360 mm NightKNIFE® szczęki, proste, wymienny nóż, 360 mm NightKNIFE® jaw, straight, exchangeable knife, 360 mm NightKNIFE® рабочая вставка, прямая, сменный нож, 360 мм Inserto NightKNIFE®, recto, cuchillo recambiable, 360 mm
	771-120	NightKNIFE® Maulteil, gerade, 200 mm NightKNIFE® szczęki, proste, 200 mm NightKNIFE® jaw, straight, 200 mm NightKNIFE® рабочая вставка, прямая 200 мм Inserto NightKNIFE®, recto, 200 mm
	771-121	NightKNIFE® Maulteil, gerade, auswechselbares Messer, 200 mm NightKNIFE® szczęki, proste, wymienny nóż, 200 mm NightKNIFE® jaw, straight, exchangeable knife, 200 mm NightKNIFE® рабочая вставка, прямая, сменный нож, 200 мм Inserto NightKNIFE®, recto, cuchillo recambiable, 200 mm

	770-999	NightKNIFE® Messer / 5 Stk. NightKNIFE® nóż / 5 szt. NightKNIFE® Blade / 5 pcs. NightKNIFE® нож / 5 шт. NightKNIFE® Cuchillo / 5 uds.	
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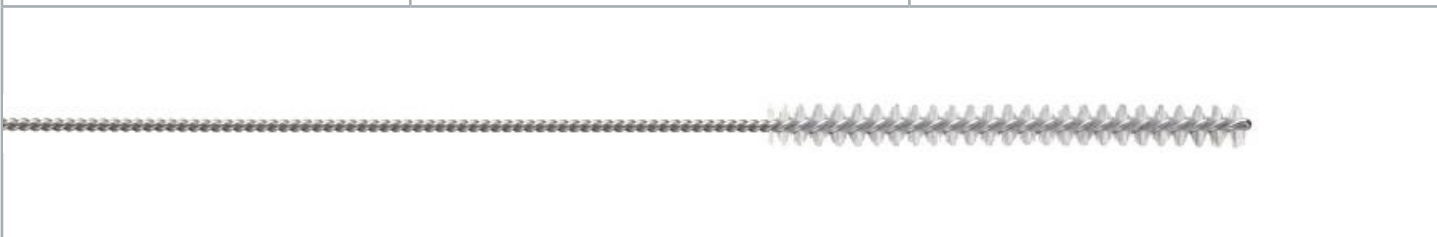
 <p>360 mm</p> <p>∅ 5 mm</p>	770-036	LIGATOR® Handgriff, Schaftrohr 360 mm und Ersatzdichtungen, COMFORT, Kabel, 4.5 m LIGATOR® uchwyt, tuba 360 mm i części zamienne, COMFORT, kabel 4.5 m LIGATOR® Handle, shaft tube 360 mm and sealing spare parts, COMFORT, cable, 4.5 m LIGATOR® рукоятка, стержневая трубка 360 мм и уплотнительные колпачки, кабель COMFORT 4.5 м LIGATOR® Mango, tubo 360 mm y juntas de recambio, COMFORT, cable 4.5 m
 <p>∅ 5 mm</p>	770-236	Schaftrohr 360 mm Tuba 360 mm Shaft tube 360 mm Стержневая трубка 360 мм Tubo 360 mm
	770-211	Schaftrohr 110 mm Tuba 110 mm Shaft tube 110 mm Стержневая трубка 110 мм Tubo 110 mm
	771-036	Maulteil, gerade, gezahnt, 360 mm Szczęki proste, ząbkowane, 360 mm Jaw for forceps, straight, toothed, 360 mm Рабочая вставка, щипцы, бранши прямые с зубчиками, 360 мм Inserto pinza recta, 360 mm
	771-011	Maulteil, gerade, gezahnt, 110 mm Szczęki proste, ząbkowane, 110 mm Jaw for forceps, straight, toothed, 110 mm Рабочая вставка, щипцы, бранши прямые с зубчиками, 110 мм Inserto pinza, recto, dentado, 110 mm
	772-036	Maulteil Maryland, gebogen, gezahnt, 360 mm Szczęki Maryland, zagięte, ząbkowane, 360 mm Jaw for forceps Maryland, curved, toothed, 360 mm Рабочая вставка, Maryland, изогнутые бранши с зубчиками, 360 мм Inserto pinza, acodado, dentad, tipo Maryland, 360 mm
	772-011	Maulteil Maryland, gebogen, gezahnt, 110 mm Szczęki Maryland, zagięte, ząbkowane, 110 mm Jaw for forceps Maryland, curved, toothed, 110 mm Рабочая вставка, Maryland, изогнутые бранши с зубчиками, 110 мм Inserto pinza, acodado tipo Maryland, dentado, 110 mm



Ersatzdichtungen
Części zamienne
Sealing spare parts
Уплотнительные колпачки
Juntas de recambio



723-020



4 Reinigungsbürsten, LAP
4 szczotki czyszczące, LAP
4 Cleaning brushes, LAP
4 Щётки для чистки, LAP
4 Escobillas de limpieza, LAP
2 x Ø 6 x 500 mm, 2 x Ø 4 x 500 mm

723-000

6.5 TissueSeal® PLUS



Rastung
Zaczepek
Ratchet
Фиксатор
Cremallera

Geprüfte Anwendungssicherheit
Sprawdzone bezpieczeństwo stosowania
Tested application safety
Подтвержденная безопасность использования
Seguridad de aplicación comprobada

Antihftbeschichtung
Powłoka nieprzywierająca
Non-stick coating
Антипригарное покрытие
Revestimiento antiadherente

Ergonomisches Design
Ergonomiczny design
Ergonomic design
Эргономичный дизайн
Diseño ergonómico

Aktive Elektrode
Elektroda aktywna
Active electrode
Активный электрод
Electrodo activo

Isolierung
Izolacja
Insulation
Изолляция
Aislamiento

1:1

TissueSeal® PLUS 190, 230, 280 mm

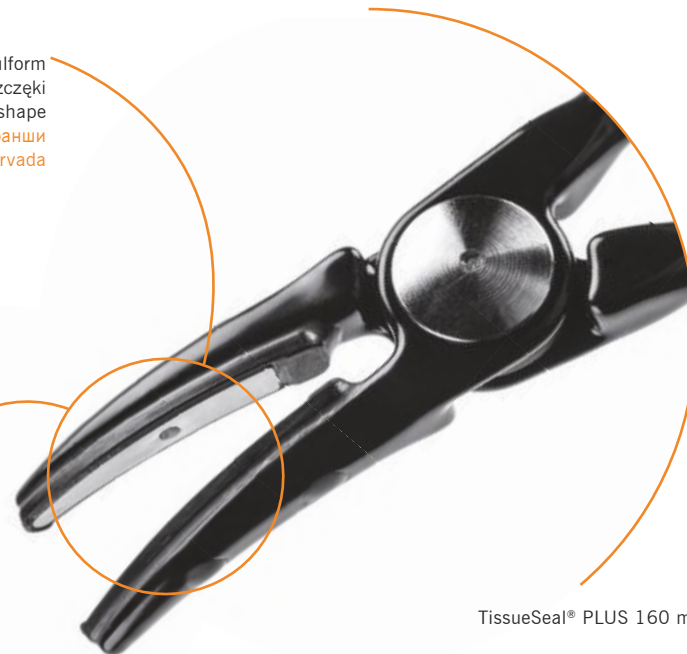
Keramikstift
Ceramiczna wypustka
Ceramics pin
Кермамические микроштифты
Punta de cerámica

Gebogene Maulform
Zagięte szczęki
Curved mouth shape
Изогнутые бранши
Punta curvada

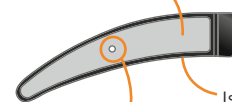
Filigrane Spitze
Filigranowa końcówka
Fine point
Филигранные бранши
Puntas filigranas

Aktive Elektrode
Elektroda aktywna
Active electrode
Активный электрод
Electrodo activo

! Minimum Thermal Spread
dank Sandwichaufbau
Minimalne oddziaływanie termiczne
dzięki warstwowej budowie
Minimum thermal spread
due to the sandwich structure
Минимальное распространение
тепла благодаря многослойной
структуре
Mínima difusión térmica
por la estructura en sándwich



TissueSeal® PLUS 160 mm



1:1

Keramikstift
Ceramiczna wypustka
Ceramics pin
Керамический микроштифт
Pin en cerámica

Isolierung
Izolacja
Insulation
Изоляция
Aislamiento



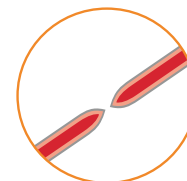
Gewebe fassen
Chwycenie tkanki
Hold the tissue
Захватите ткань
Fijar el tejido



TissueSeal® PLUS schließen und rasten
Zamknięcie i zablokowanie TissueSeal® PLUS
Close and lock the TissueSeal® PLUS
Закройте и зафиксируйте TissueSeal® PLUS
Cerrar y enclavar TissueSeal® PLUS



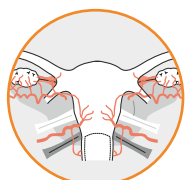
LIGATION bis Signal ertönt
LIGACJA, aż rozlegnie się sygnał
LIGATE until the signal sounds
Лигируйте до сигнала
LIGAR hasta que suena la señal



LIGATION trennen
Rozdzielenie LIGACJI
Separate the LIGATION
Разделите лигатуру
Separar la LIGADURA



Viszeralchirurgie
Chirurgia wisceralna
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Cirugía visceral



Gynäkologie
Ginekologia
Gynaecology
Гинекология
Ginecología



Urologie
Urologia
Urology
Урология
Urología

Empfohlener Modus bei BOWA ARC 400
Tryb rekomendowany dla BOWA ARC 400
Recommended mode for the BOWA ARC 400
Рекомендованные режимы для BOWA ARC 400
Modo recomendado con BOWA ARC 400



TissueSeal® PLUS



160 mm

Thyroidektomie
Tyreidektomia
Thyroidectomy
Тиреоидэктомия
Tiroidectomía

15 mm

3 mm

1.5 mm

1:1

760-216

COMFORT
Kabel, 4.5 m
Kabel, 4.5 m
Cable, 4.5 m
Кабель 4.5 м
Cable, 4.5 m

190 mm

30 mm

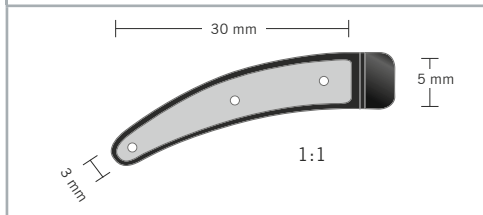
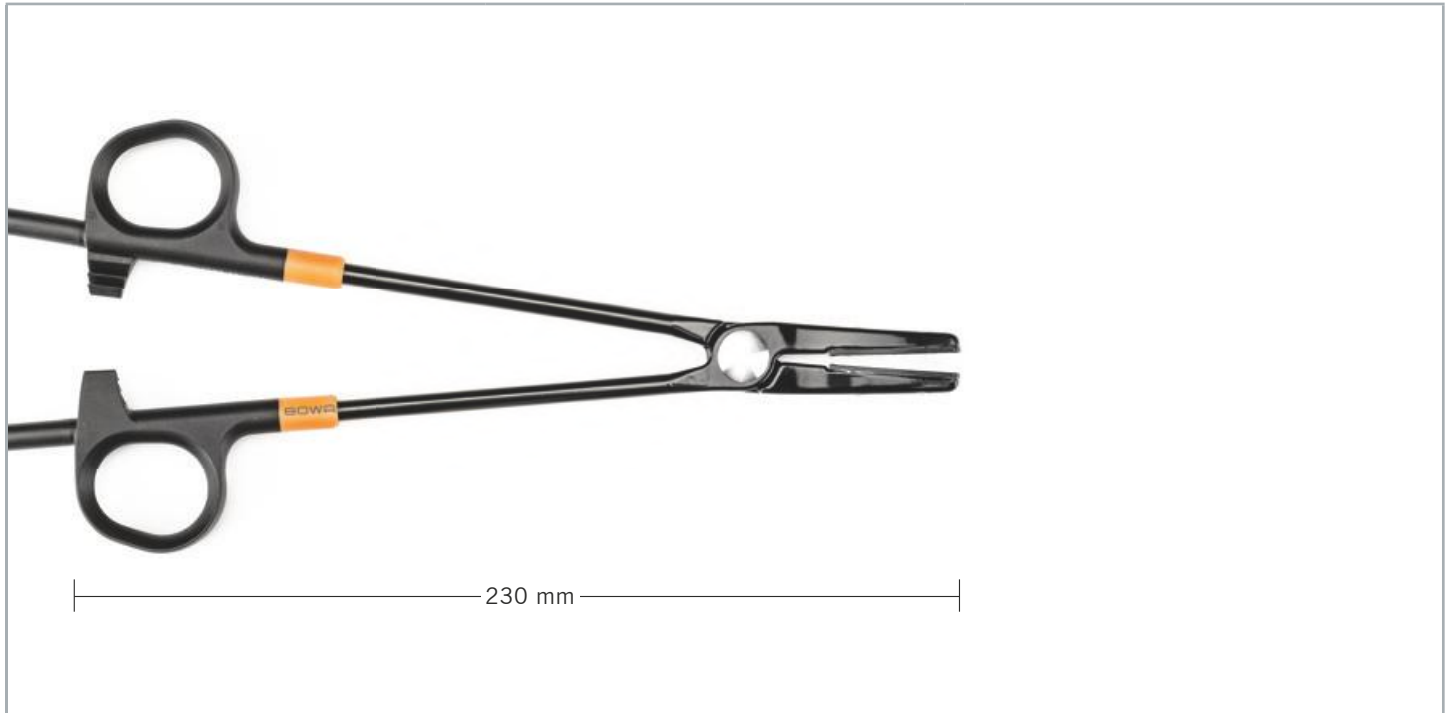
5 mm

3 mm

1:1

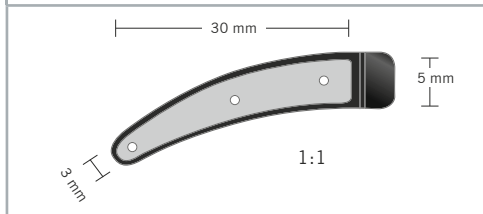
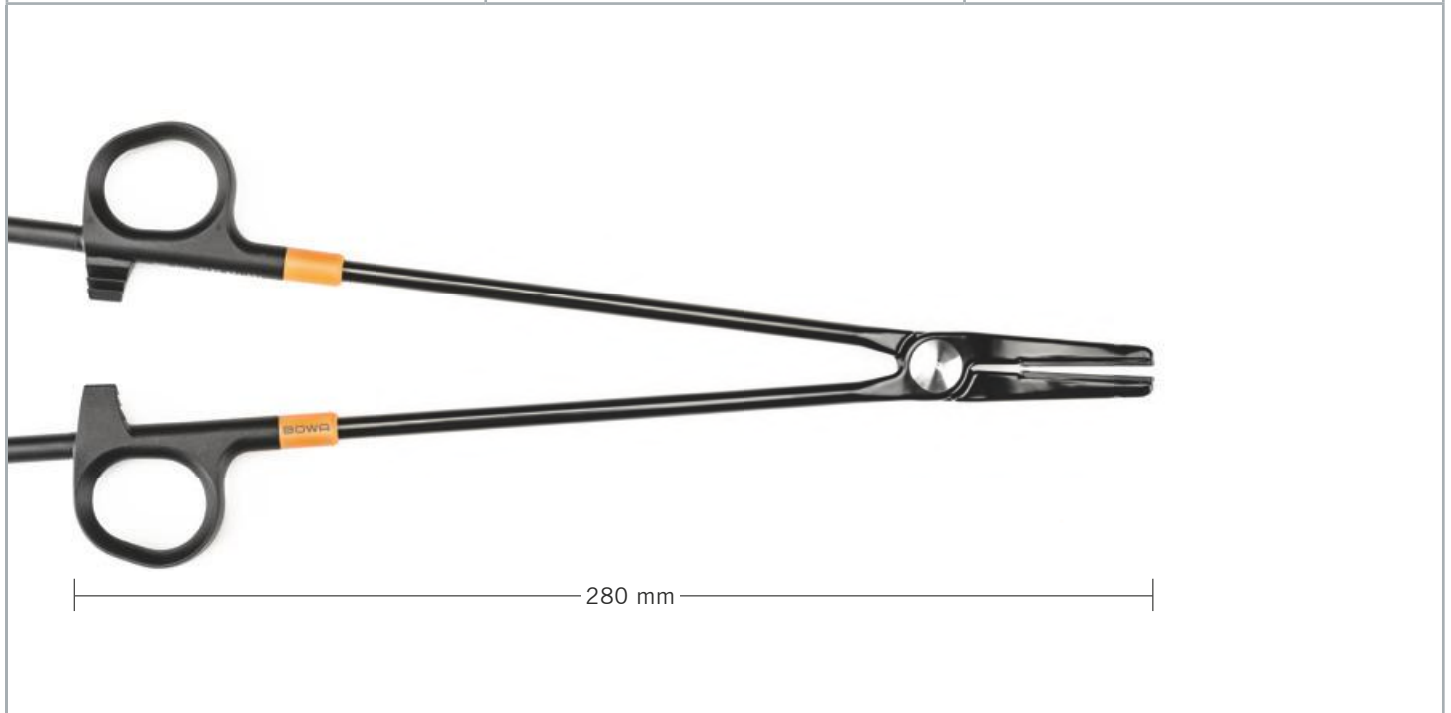
760-219

COMFORT
Kabel, 4.5 m
Kabel, 4.5 m
Cable, 4.5 m
Кабель 4.5 м
Cable, 4.5 m



760-223

COMFORT
Kabel, 4.5 m
Kabel, 4.5 m
Cable, 4.5 m
Кабель 4.5 м
Cable, 4.5 m



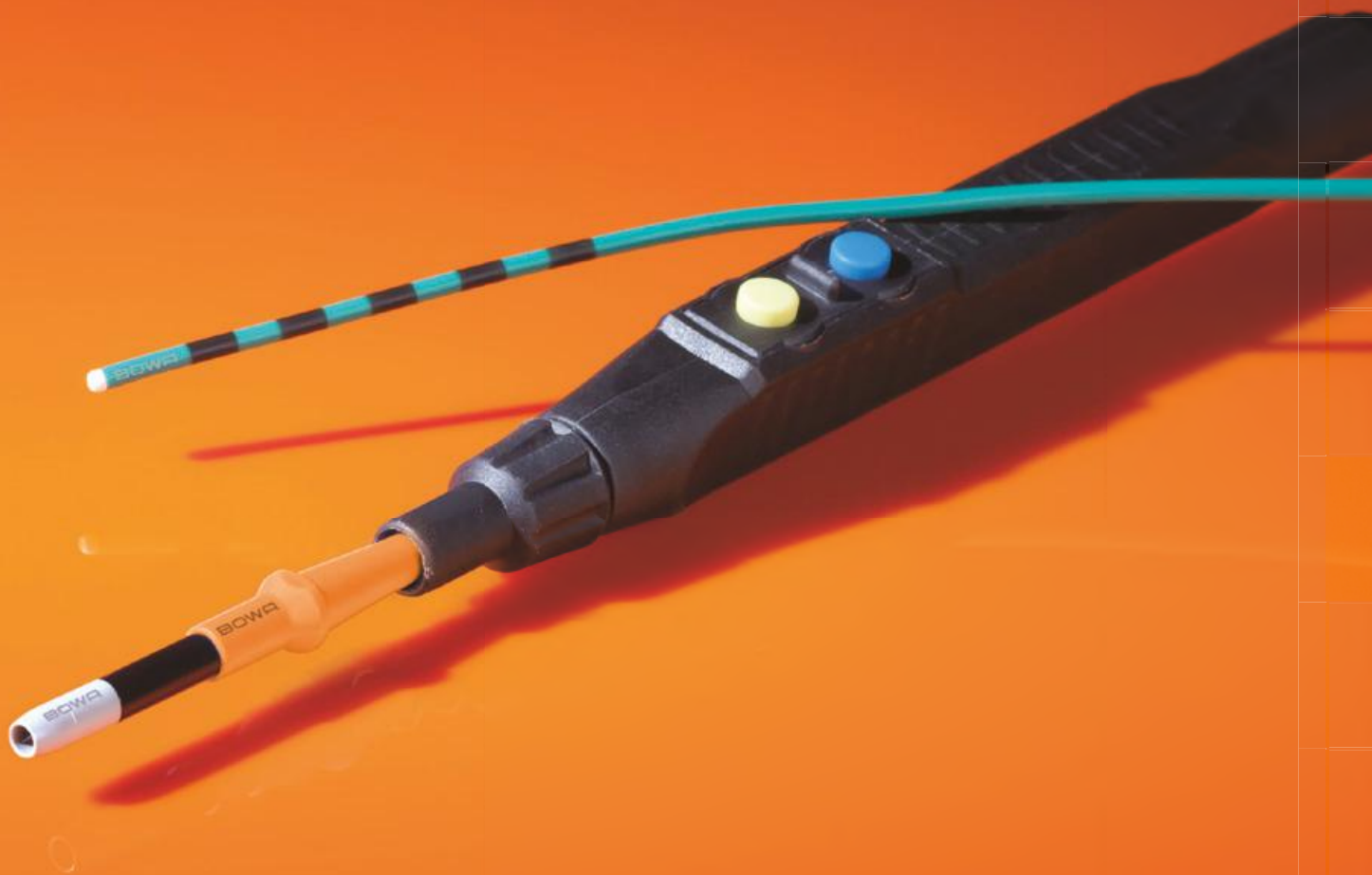
760-228

COMFORT
Kabel, 4.5 m
Kabel, 4.5 m
Cable, 4.5 m
Кабель 4.5 м
Cable, 4.5 m

7 Argon assistierte Elektrochirurgie
 Elektrochirurgia wspomagana argonem
 Argon-assisted electrosurgery
 Аргонплазменная электрохирургия
 Electrocirugía asistida con argón

<p>7.1 Offene und laparoskopische Anwendung</p> <p>7.2 Flexible Anwendung</p> <p>7.2.1 Flexible Anwendung Einmalverwendung</p> <p>7.2.2 Flexible Anwendung wiederverwendbar</p> <p>7.2.3 Anschlusskabel Argon</p> <p>7.2.4 Argon Zubehör</p>	<p>7.1 Aplikacja otwarta i laparoskopowa</p> <p>7.2 Elastyczna aplikacja</p> <p>7.2.1 Elastyczna aplikacja – jednorazowego użytku</p> <p>7.2.2 Elastyczna aplikacja – wielorazowego użytku</p> <p>7.2.3 Kable przyłączeniowe do argonu</p> <p>7.2.4 Akcesoria argonowe</p>	<p>7.1 Open and laparoscopic application</p> <p>7.2 Flexible application</p> <p>7.2.1 Flexible application disposable</p> <p>7.2.2 Flexible application reusable</p> <p>7.2.3 Connecting cables Argon</p> <p>7.2.4 Argon Accessories</p>
<p>7.1 Применение в открытой и лапароскопической хирургии</p> <p>7.2 Гибкое применение</p> <p>7.2.1 Одноразовые гибкие зонды</p> <p>7.2.2 Многоразовые гибкие зонды</p> <p>7.2.3 Соединительные кабели</p> <p>7.2.4 Принадлежности</p>	<p>7.1 Aplicación abierta y laparoscópica</p> <p>7.2 Aplicación flexible</p> <p>7.2.1 Aplicación flexible desechables</p> <p>7.2.2 Aplicación flexible reutilizable</p> <p>7.2.3 Cables de conexión argón</p> <p>7.2.4 Argon Accesorios</p>	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

7

7.1 Offene und laparoskopische Anwendung
 Aplikacja otwarta i laparoskopowa
 Open and laparoscopic application
 Применение в открытой и лапароскопической хирургии
 Aplicación abierta y laparoscópica



Effizient – Berührungslos – Rauchfrei
 Wydajne – Bezkontaktowe – Wolne od dymu
 Efficient – Contactless – Smoke free
 Эффективно – Бесконтактно – Без дыма
 Eficiente – Sin contacto – Sin humo

6-Kant-Codierung
 6-kałne zabezpieczenie przed obrotem
 Hexagon coding
 Шестигранная кодировка
 Codificación hexagonal

4600V_p/Вт

Peek-Isolation
 Izolacja z PEEK
 Peek insulation
 PEEK-изоляция
 Aislamiento en Peek

Keramik-Isolation
 Izolacja ceramiczna
 Ceramics insulation
 Керамическая изоляция
 Aislamiento en cerámica



Optimiertes Strömungsverhalten für hervorragende Zündung
 Zoptymalizowany przepływ gwarantuje wysmienity zapłon
 Optimized flow behaviour for excellent ignition
 Оптимизированный поток для отличного воспламенения
 Régimen de corriente optimizado para un encendido perfecto

Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Режимы рекомендованные для BOWA ARC 400
 Modos recomendados con BOWA ARC 400



Argon CUT



Argon COAG



932-042

Argon-Handgriff COMFORT, Kabel 3.5 m
Uchwyt argonowy COMFORT, kabel 3.5 m
Argon handle COMFORT, cable 3.5 m
Аргоноплазменный держатель электродов
COMFORT, кабель 3.5 м
Mango para argón COMFORT, cable 3.5 m

BOWA
ARC
PLUS

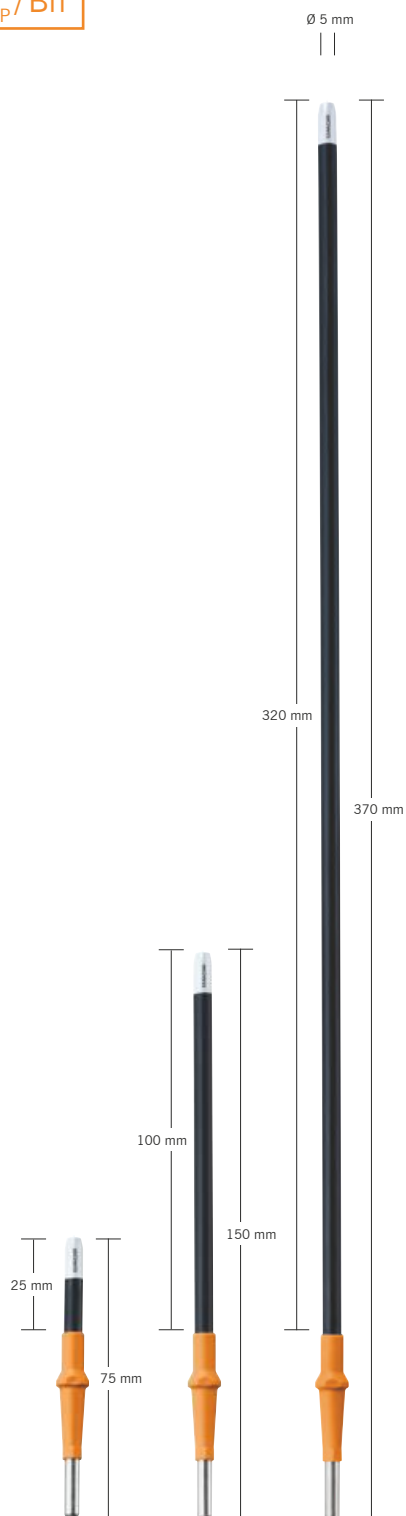
7.1 Offene und laparoskopische Anwendung
 Aplikacja otwarta i laparoskopowa
 Open and laparoscopic application
 Применение в открытой и лапароскопической хирургии
 Aplicación abierta y laparoscópica



	932-035	100 mm	<div style="border: 1px solid orange; padding: 5px; display: inline-block;">4600V_p/Вп</div> <p>Starre Argon-Nadel-Schneide- und Koagulationselektrode Sztynna igłowa elektroda argonowa do cięcia i koagulacji Rigid Argon needle cutting and coagulation electrode Электрод-игла для аргоноплазменной резки и коагуляции Electrodo rígido de argón tipo aguja, para cortar y coagular</p>
	932-055	100 mm	<div style="border: 1px solid orange; padding: 5px; display: inline-block;">4600V_p/Вп</div> <p>Starre Argon-Messer-Schneide- und Koagulationselektrode Sztynna nożowa elektroda argonowa do cięcia i koagulacji Rigid Argon knife cutting and coagulation electrode Электрод-нож для аргоноплазменной резки и коагуляции Electrodo rígido de argón tipo cuchilla, para cortar y coagular</p>
	932-058	150 mm	
	932-059	370 mm	



4200V_p/Вп



932-031

75 mm

Starre Argon-Koagulationselektrode
Szttywna elektroda argonowa do koagulacji
Rigid Argon coagulation electrode
Электрод для аргоноплазменной
коагуляции
Electrodo de coagulación rígido para argón

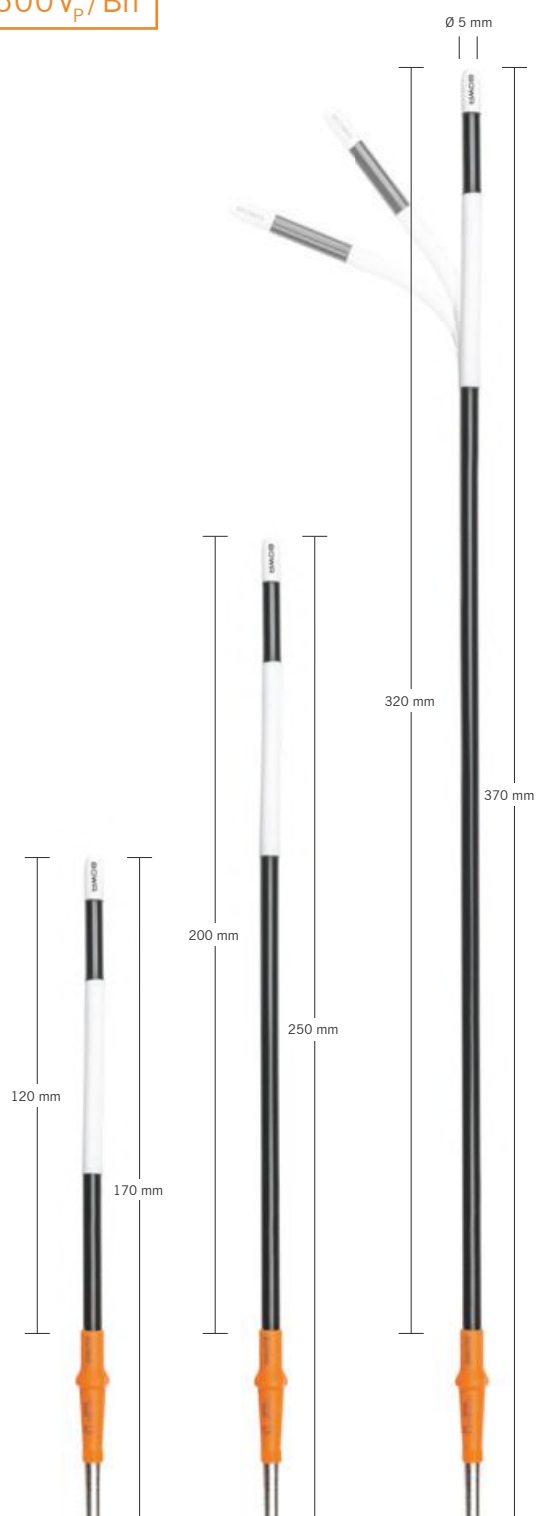
932-032

150 mm

932-034

370 mm

4600V_p/Вп



932-060

170 mm

932-061

250 mm

932-062

370 mm

Argon-Koagulationselektrode, biegbar
Elektroda argonowa do koagulacji, giętka
Argon coagulation electrode, bendable
Электрод для аргоноплазменной
коагуляции, сгибаемый
Electrodo de coagulación con argón, flexible

7.2 Flexible Anwendung
 Elastyczna aplikacja
 Flexible application
 Гибкое применение
 Aplicación flexible



Sicheres Arbeiten und Perforationsschutz
 Bezpieczna praca i ochrona przed perforacją
 Safe electrosurgery and reduced risk of perforation
 Безопасная электрохирургия и максимальная защита от перфорации
 Trabajar con seguridad y protección contra la perforación

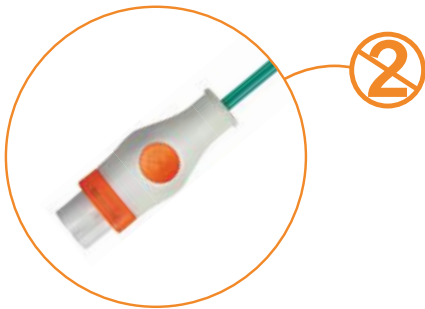
5200V_p/Вп



Skala
 Skala
 Scale
 Шкала
 Escala

Optimaler Farbkontrast
 Optymalny kontrast kolorów
 Optimum colour contrast
 Оптимальный цветовой контраст
 Óptimo contraste de color

Stumpfe Keramikspitze
 Zaokrąglona końcówka ceramiczna
 Blunt ceramic tip
 Тупой керамический кончик
 Punta de cerámica redonda



90° Sidefire-Ausführung
 Wersja 90° z wypływem bocznym
 90° Sidefire version
 Versija с боковым направлением 90°
 Modelo 90° lateral



134°C
 Autoclave
 273°F

Optimiertes Strömungsverhalten
 Zoptymalizowany przepływ gazu
 Optimised flow behaviour
 Оптимизированное распределение потока
 Óptimo comportamiento de flujo



90°



Empfohlene Modi bei BOWA ARC 400
 Tryby rekomendowane dla BOWA ARC 400
 Recommended modes for the BOWA ARC 400
 Рекомендованные режимы для BOWA ARC 400
 Modos recomendados con BOWA ARC 400




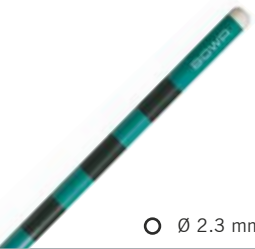

Argon PULSED



Argon FLEX






7.2.1 Flexible Anwendung – Einmalverwendung
 Elastyczna aplikacja – jednorazowego użytku
 Flexible application – disposable
 Гибкое применение – одноразовые зонды
 Aplicación flexible – desechables



STERIL, 10 St. / VPE STERYLNE, 10 szt. / op. STERILE, 10 pcs / PU Стерильные, 10 штук / уп. ESTÉRIL, 10 uds. / unidad de embalaje		∅	Länge Długość Length Длина Longitud	Argon-Strahl Strumień argonu Beam of argon Направление потока аргона Chorro de argón
 <p>∅ 1.5 mm</p>	932-248	1.5 mm	1.5 m	
	932-251	1.5 mm	3 m	
 <p>∅ 2.3 mm</p>	932-249	2.3 mm	2.2 m	Axial Osiowy Axial Аксиально Axial
	932-252	2.3 mm	3 m	
 <p>∅ 3.2 mm</p>	932-250	3.2 mm	2.2 m	
 <p>∅ 2.3 mm</p>	932-253	2.3 mm	2.2 m	Lateral Boczny Lateral Латерально Lateral

7.2.2 Flexible Anwendung – wiederverwendbar
 Elastyczna aplikacja – wielorazowego użytku
 Flexible application – reusable
 Гибкое применение – многоразовые зонды
 Aplicación flexible – reutilizable



UNSTERIL, 1 St. / VPE NIESTERYLNE, 1 szt. / op. UNSTERILE, 1 pc / PU Не стерильно 1 штука в уп. NO ESTÉRIL, 1 ud. / unidad de embalaje		∅	Länge Długość Length Длина Longitud	Argon-Strahl Strumień argonu Beam of argon Направление потока аргона Chorro de argón
 <p>∅ 1.5 mm</p>	932-148	1.5 mm	1.5 m	Axial Osiowy Axial Аксиально Axial
	932-151	1.5 mm	3 m	
 <p>∅ 2.3 mm</p>	932-154	2.3 mm	1 m	
	932-149	2.3 mm	2.2 m	
	932-152	2.3 mm	3 m	
 <p>∅ 3.2 mm</p>	932-150	3.2 mm	2.2 m	Lateral Boczny Lateral Латерально Lateral
 <p>∅ 2.3 mm</p>	932-153	2.3 mm	2.2 m	

7.2.3 Anschlusskabel Argon
 Kable przyłączeniowe do argonu
 Connecting cables Argon
 Соединительный кабель для гибких аргоноплазменных зондов
 Cables de conexión argón




134°C
 Autoclave
 273°F



932-146			
<p>Anschlusskabel für flexible Argonsonden, 2.5 m lang, Anschluss 3-pin für HF und Luer Lock für Argon Gas Kabel przyłączeniowy do elastycznych sond argonowych, dł. 2.5 m, 3-pin, do podłączenia HF i Luer Lock Connecting cable for flexible Argon probes, 2.5 m long, 3-pin connector for HF and Luer Lock connection for Argon gas Соединительный кабель для гибких аргоноплазменных зондов 2.5 м длина, 3-х штырьковая вилка к ВЧ аппарату и Luer Lock соединение к газу аргону. Cable de conexión para sondas de argón flexibles, 2.5 m de largo, conector 3-pin para AF y Luer Lock para gas argón</p>			

7.2.4 Argon Zubehör
 Akcesoria argonowe
 Argon Accessories
 Аргоноплазменные принадлежности
 Argon Accesorios



	830-050	<p>Sterilfilter-Set / 50 Stk. Zestaw sterylnych filtrów / 50 szt. Sterile filter set / 50 pcs. Фильтры стерильные упак. 50 штук Juego de filtros esteriles / 50 uds.</p> 
	932-910	<p>Spüladapter für flexible Argonsonden zum Anschluss an Spülmaschinen / 5 Stk. Adapter płuczący do elastycznych sond argonowych podłączany do urządzenia myjącego / 5 szt. Rinsing adaptor for flexible argon probes to connect to washing machines / 5 pcs. Адаптер промывки гибкого зонда для соединения с моющей машиной 5 шт. в уп. Adaptador de enjuague para sondas flexibles de argón, para conectar a lavajillas / 5 uds.</p>

8 Neutralelektroden
 Elektrody neutralne
 Neutral electrodes
 Нейтральные электроды
 Electrodos neutros

8.1 Einmal-Neutralelektroden	8.1 Elektrody neutralne jednorazowego użytku	8.1 Single-use return plates
8.2 Anschlusskabel	8.2 Kable przyłączeniowe	8.2 Connecting cable
8.3 Wiederverwendbare Gummi-Neutralelektroden (Silikon)	8.3 Elektrody neutralne wielorazowego użytku, gumowe	8.3 Reusable rubber return plates (silicone)
8.4 Zubehör	8.4 Akcesoria	8.4 Accessories
8.1 Нейтральные электроды одноразовые	8.1 Electrodos neutros desechables	
8.2 Соединительные кабели	8.2 Cables de conexión	
8.3 Нейтральные электроды многоразовые (силиконовые)	8.3 Electrodos neutros de goma reutilizables (silicona)	
8.4 Принадлежности	8.4 Accesorios	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednokrotnego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

8

8.1 Einmal-Neutralelektroden
Elektrody neutralne jednorazowego użytku
Single-use return plates
Нейтральные электроды одноразовые
Electrodos neutros desechables



Sicherheit zum Aufkleben – Überwachbar
Bezpieczeństwo po przyklejeniu – Monitorowane
Security for sticking – Monitored
Безопасная фиксация – Мониторинг
Seguridad para la aplicación – Monitoreable

Anatomisches Design
Anatomiczny kształt
Anatomic design
Анатомический дизайн
Diseño anatómico

Innovatives Hydrogel
Innowacyjny hydrożel
Innovative hydrogel
Иновационный гидрогель
Capa de hidrogel innovadora

Flexibel mit / ohne Kabel
Elastyczne z kablem lub bez
Flexible with / without cable
Вариативно: с кабелем или без
Flexible con / sin cable

Zugentlastung
Skrzydła zapobiegające
przypadkowemu odklejaniu
Strain relief
Разгрузка от натяжения
Descarga de tracción

Sicherheitsring für optimale Stromsymmetrie
Pierścień bezpieczeństwa dla optymalnej symetrii prądu
Safety ring for optimum current symmetry
Кольцо безопасности для оптимальной симметрии тока
Anillo equipotencial de seguridad para una óptima distribución simétrica

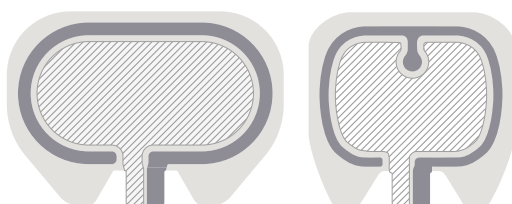


EASY universell und richtungsunabhängig einsetzbar
EASY uniwersalna i niezależna od kierunku aplikacja
EASY universally attachable and independent of orientation
EASY универсальность при фиксации и независимость от ориентации
EASY aplicación universal e independiente de la orientación

Elastische Schaumabdeckung für ideale Anpassung
Idealne dopasowanie dzięki elastycznej piance
Elastic foam backing for ideal shaping
Эластичная пенная подложка для идеальной фиксации
El revestimiento de espuma elástica permite una adaptación perfecta






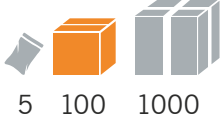
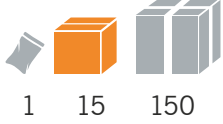
Flüssigkeitsabweisend
Odporny na działanie cieczy
Liquid-repellent
Защита от жидкостей
Impermeable

Festhaftende Sicherheitsränder
Samoprzylepna ramka bezpieczeństwa
Adhesive safety frame
Прочно удерживающая клеевая рамка безопасности
Borde de seguridad adhesivo











8.1 Einmal-Neutralelektroden
 Elektrody neutralne jednorazowego użytku
 Single-use return plates
 Нейтральные электроды одноразовые
 Electrodos neutros desechables



Universal Uniwersalne Universal Универсальный Universal	> 5 kg 	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.
EASY Universal $A_{cond^*} = 90 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO		
EASY Standard $A_{cond^*} = 110 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO		
Verpackung Opakowanie Packing Упаковка Embalaje		
	816-092	818-092
	816-112	818-112

* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superfície conductora










Universal Uniwersalne Universal Универсальный Universal	> 5 kg 	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.
EASY ECO $A_{cond^*} = 70 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO 	 816-072	 818-072
$A_{cond^*} = 110 \text{ cm}^2$ UNGETEILT NIEDZIELONE NON-SPLIT ЦЕЛЬНЫЙ NO DIVIDIDO	 815-110	 817-110
Verpackung Opakowanie Packing Упаковка Embalaje	 5 100 1000	 1 15 150
* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superficie conductora		

8.1 Einmal-Neutralelektroden
 Elektrody neutralne jednorazowego użytku
 Single-use return plates
 Нейтральные электроды одноразовые
 Electrodo neutros desechables



Erwachsene Dorośli Adult Взрослый Adultos	>15 kg 	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.
EASY $A_{cond} = 160 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO		
$A_{cond} = 160 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO		
Verpackung Opakowanie Packing Упаковка Embalaje		
* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superficie conductora		



Erwachsene Dorośli Adult Взрослый Adultos	> 15 kg 	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.
$A_{cond} = 140 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO		
$A_{cond} = 140 \text{ cm}^2$ UNGETEILT NIEDZIELONE NON-SPLIT ЦЕЛЬНЫЙ NO DIVIDIDO		
Verpackung Opakowanie Packing Упаковка Embalaje	 5 100 1000	 1 15 150
* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superfície conductora		

8.1 Einmal-Neutralelektroden
 Elektrody neutralne jednorazowego użytku
 Single-use return plates
 Нейтральные электроды одноразовые
 Electrodos neutros desechables








Kinder Dzieci Children Детский Niños	5 kg – 15 kg 	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.
A _{cond*} = 70 cm ² GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO 	 816-071	 818-071
A _{cond*} = 70 cm ² UNGETEILT NIEDZIELONE NON-SPLIT ЦЕЛЬНЫЙ NO DIVIDIDO 	 815-070	 817-070
Verpackung Opakowanie Packing Упаковка Embalaje	 5 100 1000	 1 15 150
* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superficie conductora		



Neugeborene Noworodki Newborns Новорожденные Neonatos		< 5 kg	
	REF ohne Kabel / 100 Stk. REF bez kabla / 100 szt. REF without cable / 100 pcs. Арт. без кабеля / 100 штук Ref. sin cable / 100 uds.	REF mit Kabel 3 m / 15 Stk. REF z kablem 3 m / 15 szt. REF with cable 3 m / 15 pcs. Арт. с кабелем 3 м / 15 шт. Ref. con cable de 3 m / 15 uds.	
EASY $A_{cond^*} = 40 \text{ cm}^2$ GETEILT DZIELONE SPLIT СОСТАВНОЙ DIVIDIDO 			
	816-042	818-042	
$A_{cond^*} = 40 \text{ cm}^2$ UNGETEILT NIEDZIELONE NON-SPLIT ЦЕЛЬНЫЙ NO DIVIDIDO 			
	815-040	817-040	
Verpackung Opakowanie Packing Упаковка Embalaje			
	5 100 1000	1 15 150	
* Kontaktfläche / Powierzchnia kontaktowa / Conductive surface / Проводящая поверхность / Superficie conductora			

8.2 Anschlusskabel
 Kable przyłączeniowe
 Connecting cable
 Соединительный кабель
 Cables de conexión



Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Разъём со стороны аппарата Enchufe, parte generador	Stecker, Neutralelektrodenseite Wtyczka – strona elektrody Plug, return plate side Клемма к пластине нейтрального электрода Enchufe, parte electrodo neutro	REF	Für Generator Typ Przystosowane do generatorów For generator type Для аппарата типа Para generador tipo
		294-050 (4.5 m)	Erbe VIO / ICC / ACC Erbe T-Serie Martin
		101-150 (4.5 m)	ALSA Eschmann*
		380-050 (4.5 m)	BOWA Erbe ICC / VIO International Valleylab REM Conmed
		386-050 (4.5 m)	BOWA Erbe ICC / VIO International Valleylab NON-REM Conmed

* Abhängig von jeweiliger Buchsenkonfiguration
 Zależy od indywidualnej konfiguracji gniazda
 Depends on individual socket configuration
 Зависит от индивидуальной конфигурации разъёмов
 Depende de la configuración individual de las salidas

8.3 Wiederverwendbare Gummi-Neutralelektroden (Silikon)
 Elektrody neutralne wielorazowego użyciu (silikon)
 Reusable rubber return plates (silicone)
 Нейтральные электроды многоразовые силиконовые
 Electrodo neutros de goma reutilizables (silicona)




REF	242-003	Für Generatoren Do generatorów For generators Для аппаратов Para generadores	BOWA ERBE International Martin International Valleylab Conmed
REF	232-003	Für Generatoren Do generatorów For generators Для аппаратов Para generadores	BOWA ERBE international Martin Valleylab Conmed

Stecker, Geräteseite Wtyczka – strona generatora Plug, generator side Штекер со стороны аппарата Enchufe, parte generador	Stecker, Neutralelektrodenseite Wtyczka – strona elektrody Plug, return plate side Разъём к нейтральному электроду Enchufe, parte electrodo neutro	REF	Für Generator Typ Przystosowane do generatorów For generator type Для аппарата типа Para generador tipo
		295-050 (4.5 m)	Martin
		385-050 (4.5 m)	BOWA ERBE international Martin Valleylab Conmed

8.4 Zubehör
Akcesoria
Accessories
Принадлежности
Accesorios

134°C
Autoclave
273°F



	194-075	<p>Elastische Gummibinde gelocht, mit Befestigungsknopf, 750 mm Opaska gumowa, perforowana, z przyciskiem mocującym, 750 mm Rubber band, perforated, with fixing button, 750 mm Лента резиновая с фиксатором, содержит латекс, 75 см Cinta de goma elastica, perforada, con botón de fijación, 750 mm</p>
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9 ARC System und Zubehörteile
 System ARC i akcesoria
 ARC system and accessories
 Система ARC и принадлежности
 Sistema ARC y accesorios

9.1 Elektrochirurgie-Geräte	9.1 Urządzenia elektrochirurgiczne	9.1 Electrosurgical units
9.2 Fußschalter	9.2 Włącznik nożny	9.2 Footswitch
9.3 Kommunikations-Interface ARC – ARC PLUS	9.3 Interfejs komunikacyjny ARC – ARC PLUS	9.3 Communication interface ARC – ARC PLUS
9.4 Netzkabel	9.4 Kabel sieciowy	9.4 Mains cable
9.5 Potentialausgleichsleitung	9.5 Przewód wyrównania potencjału	9.5 Equipotential bonding
9.6 Druckminderer für ARC PLUS REF 900-000	9.6 Reduktor ciśnienia do ARC PLUS REF 900-000	9.6 Pressure reducer for ARC PLUS REF 900-000
9.7 Druckminderer für ARC PLUS REF 900-001	9.7 Reduktor ciśnienia do ARC PLUS REF 900-001	9.7 Pressure reducer for ARC PLUS REF 900-001
9.8 Argon Gasflasche	9.8 Butle na argon	9.8 Gas cylinder Argon
9.1 Аппараты электрохирургические	9.1 Equipos de electrocirugía	
9.2 Ножной переключатель	9.2 Conmutador de pie	
9.3 Интерфейс коммуникационный ARC – ARC PLUS	9.3 Interfaz de comunicación ARC – ARC PLUS	
9.4 Кабель сетевой	9.4 Cable de red	
9.5 Кабель выравнивания потенциалов	9.5 Conductor equipotencial	
9.6 Редуктор давления для ARC PLUS REF 900-000	9.6 Manorreductor para ARC PLUS REF 900-000	
9.7 Редуктор давления для ARC PLUS REF 900-001	9.7 Manorreductor para ARC PLUS REF 900-001	
9.8 Газовый баллон для аргона	9.8 Botella de gas argón	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

9.1 Elektrochirurgie-Geräte
 Urządzenia elektrochirurgiczne
 Electrosurgical units
 Аппараты электрохирургические
 Equipos de electrocirugía



900-400	ARC 400	400 W CUT monopolar / bipolar 250 W monopolar / 350 W bipolar COAG 2 x monopolar – 3 x bipolar MICRO SimCOAG GastroCut / Argon incl. AUTOSTART Touchscreen	Plug'n Cut COMFORT LIGATION (option) Bipolar Resection (option) EASY ISSys ARC CONTROL MetraLOOP®
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900-351	ARC 350	350 W CUT monopolar / bipolar 250 W monopolar / 350 W bipolar COAG 2 x monopolar – 2 x bipolar MICRO SimCOAG AUTOSTART Touchscreen	Plug'n Cut COMFORT GastroCUT (option) LIGATION (option) Bipolar Resection (option) EASY ISSys ARC CONTROL MetraLOOP®
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BOWA
D F C
4 0 0

BOWA
D F C
3 5 0

900-001	ARC PLUS	<p>ARC PLUS Argon-Koagulationsgerät für ARC 400 / ARC 350 (REF 900-351) ARC PLUS – przystawka argonowa dla ARC 400 / ARC 350 (REF 900-351) ARC PLUS argon coagulation unit for ARC 400 / ARC 350 (REF 900-351) ARC PLUS аппарат аргоноплазменный электрохирургический к ARC 400 / ARC 350 (Art.№ 900-351) ARC PLUS Equipo de coagulación con argón para ARC 400 / ARC 350 (REF 900-351)</p>
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<p>ARC 400 / ARC 350 (REF 900-351) Option Opcje ARC 400 / ARC 350 (REF 900-351) ARC 400 / ARC 350 (REF 900-351) option ARC 400 / ARC 350 (REF 900-351) опция ARC 400 / ARC 350 (REF 900-351) opción</p>		
	900-395	<p>Option Bipolare Resektion für ARC 400 / ARC 350 (REF 900-351) Resekcja bipolarna – opcja dla ARC 400 / ARC 350 (REF 900-351) Option Bipolar resection, for ARC 400 / ARC 350 (REF 900-351) Опция "Биполярная резекция" для ARC 400 / ARC 350 (Art.№ 900-351) Opción Resección bipolar para ARC 400 / ARC 350 (REF 900-351)</p>
	900-396	<p>Option LIGATION® für ARC 400 / ARC 350 (REF 900-351) LIGATION® – opcja dla ARC 400 / ARC 350 (REF 900-351) Option LIGATION® for ARC 400 / ARC 350 (REF 900-351) Опция LIGATION® для ARC400 / ARC 350 (Art.№ 900-351) Opción LIGATION® para ARC 400 / ARC 350 (REF 900-351)</p>
	900-399	<p>Option Bipolar SimCoag für ARC 400 Bipolarny SimCoag – opcja dla ARC 400 Option Bipolar SimCoag for ARC 400 Опция "Биполярная SimCoag" для ARC 400 Opción Bipolar SimCoag para ARC 400</p>
	900-401	<p>Dr. Dongle® für ARC 400 Dr. Dongle®, dla ARC 400 Dr. Dongle® for ARC 400 Dr. Dongle® для ARC 400 Dr. Dongle® para ARC 400</p>
	900-402	<p>USB Stick für ARC 400 Pamięć USB dla ARC 400 USB flash drive for ARC 400 USB порт для ARC 400 Memoria USB para ARC 400</p>
	900-391	<p>Option Argon / GastroCut, für ARC 350 (REF 900-351) Argon / GastroCut – opcja dla ARC 350 (REF 900-351) Option Argon / GastroCut, for ARC 350 (REF 900-351) Опция "Argon / GastroCut" для ARC 350 (REF 900-351) Opción Argon / GastroCut, para ARC 350 (REF 900-351)</p>

9.1 Elektrochirurgie-Geräte
 Urządzenia elektrochirurgiczne
 Electrosurgical units
 Аппараты электрохирургические
 Equipos de electrocirugía

900-303	ARC 303	300 W CUT monopolar 120 W COAG 2 x monopolar – 1 x bipolar outlet MICRO SimCOAG Autostart	Option Europe GastroCut / Argon (option) Cable holder / short manual (option) EASY ISSys ARC CONTROL

900-250	ARC 250	250 W CUT monopolar 120 W COAG 1 x monopolar – 1 x bipolar outlet MICRO Autostart	Option Europe GastroCut / Argon (option) Cable holder / short manual (option) EASY ISSys ARC CONTROL

900-000	ARC PLUS	ARC PLUS Argon-Koagulationsgerät für ARC 250 / 303 ARC PLUS – przystawka argonowa dla ARC 250 / 303 ARC PLUS argon coagulation unit for ARC 250 / 303 ARC PLUS аппарат аргоноплазменный электрохирургический к ARC 250 / 303 ARC PLUS Equipo de coagulación con argón para ARC 250 / 303	

	<p>900-392</p>	<p>Optionale Erweiterung „Argon / GastroCut“ für ARC 250 / 303 Argon / GastroCut - opcja dla ARC 250 / 303 Optional upgrade „Argon / GastroCut“ for ARC 250 / 303 Опция "Argon / GastroCut" для ARC 250 / 303 Ampliación opcional „Argón / GastroCut“ para ARC 250 / 303</p>
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<p>ARC 303 Option Europa Opcja Europa Option Europe Опция «Europe» Opción Europa</p>	<p>900-397</p>	<p>Die Option erlaubt den Betrieb von Erbe- und Martin-Handgriffen über einen Adapter. Opcja umożliwia korzystanie z uchwytów Erbe i Martin przy użyciu adaptera This option permits the operation of Erbe and Martin handles using an adapter. Эта опция позволяет оперировать держателями элек-ов Erbe и Martin через адаптер La opción permite el funcionamiento de lápices Erbe y Martin mediante un adaptador.</p> <p>inkl. Kurzbedienungsanleitung, Systemmeldungen Zawiera skróconą instrukcję obsługi i kody błędów incl. Basic guidelines, system information вкл. основные инструкции, системную информацию incl. Instrucciones básicas, informaciones del sistema</p> <p>Kabelhalter Uchwył na kable Cable holder Держатель кабеля Portacables</p>
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oder / lub / or / или / o

<p>ARC 250 Option Europa Opcja Europa Option Europe Опция «Europe» Opción Europa</p>	<p>900-398</p>	<p>Die Option erlaubt den Betrieb von Erbe- und Martin-Handgriffen über einen Adapter. Opcja umożliwia korzystanie z uchwytów Erbe i Martin przy użyciu adaptera This option permits the operation of Erbe and Martin handles using an adapter. Эта опция позволяет оперировать держателями элек-ов Erbe и Martin через адаптер La opción permite el funcionamiento de lápices Erbe y Martin mediante un adaptador.</p> <p>inkl. Kurzbedienungsanleitung, Systemmeldungen Zawiera skróconą instrukcję obsługi i kody błędów incl. Basic guidelines, system information вкл. основные инструкции, системную информацию incl. Instrucciones básicas, informaciones del sistema</p> <p>Kabelhalter Uchwył na kable Cable holder Держатель кабеля Portacables</p>
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oder / lub / or / или / o

	<p>900-450</p>	<p>Kurzbedienungsanleitung, Systemmeldungen Skrócona instrukcja obsługi i kody błędów Basic guidelines, system information Основные инструкции, системная информация Instrucciones básicas, informaciones del sistema ARC 250 / 303</p>
	<p>900-451</p>	<p>Kabelhalter für Uchwył na kable dla Cable holder for Держатель кабеля Portacables para ARC 250 / 303</p>







9.1 Elektrochirurgie-Geräte
 Urządzenia elektrochirurgiczne
 Electrosurgical units
 Аппараты электрохирургические
 Equipos de electrocirugía




900-100	ARC 100	100 W CUT monopolar 100 W COAG 1 x monopolar – 1 x bipolar outlet	EASY ISSys
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220-345		ARC 100 Jackknife 2,4 mm mit Kabel bipolare Pinzette 4 m ARC 100 JackKNIFE 2,4 mm z kablem do szczypiec bipolarnych 4 m ARC 100 Jackknife 2.4 mm with cable for bipolar forceps 4 m ARC 100 JackKNIFE, коннектор 2,4 мм с кабелем для биполярных пинцетов 4 м ARC 100 JackKNIFE 2,4 mm con cable para pinza bipolar, longitud 4 m
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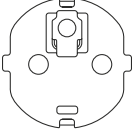
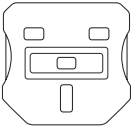
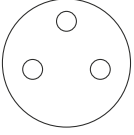

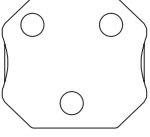
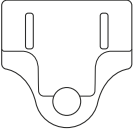
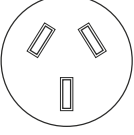
9.2 Fußschalter
 Włącznik nożny
 Footswitch
 Ножные переключатели
 Interruptor de pedal

IP X8, eintauchbar, explosionsgeschützt IP X8, wodoodporny, zabezpieczony przed wybuchem IP X8, immersion, explosion-protected IP X8, погружной, взрывозащищённый IP X8, protección contra inmersión y explosión		ARC 400 / 350	ARC 250 / 303	ARC 100
	901-032 Doppelpedal-Fußschalter mit Taster und Bügel, Kabel 4 m Podwójny włącznik nożny, z dodatkowym przyciskiem i klipssem, kabel 4 m Double-pedal footswitch with switch and clip, cable 4 m Двухпедальный ножной переключатель с кнопкой и дугой, кабель 4 м Interruptor de pedal doble, con tecla y estribo, cable 4 m	●	●	
	901-031 Doppelpedal-Fußschalter mit Taster, Kabel 4 m Podwójny włącznik nożny z dodatkowym przyciskiem, kabel 4 m Double-pedal footswitch with switch, cable 4 m Двухпедальный ножной переключатель с кнопкой, кабель 4 м Interruptor de pedal doble, con tecla, cable 4 m	●	●	
	901-021 Doppelpedal-Fußschalter, Kabel 4 m Podwójny włącznik nożny, kabel 4 m Double-pedal footswitch, cable 4 m Двухпедальный ножной переключатель, кабель 4 м Interruptor de pedal doble, cable 4 m		●	
	901-022 Doppelpedal-Fußschalter, Kabel 4 m Podwójny włącznik nożny, kabel 4 m Double-pedal footswitch, cable 4 m Двухпедальный ножной переключатель, кабель 4 м Interruptor de pedal doble, cable 4 m		●	
	901-011 Einpedal-Fußschalter mit Taster, Kabel 4 m Pojedynczy włącznik nożny z dodatkowym przyciskiem, kabel 4 m Single-pedal footswitch, with switch, cable 4 m Однопедальный ножной переключатель с кнопкой, кабель 4 м Interruptor de pedal con un pedal, con tecla, cable 4 m	●	●	
	901-012 Einpedal-Fußschalter für ARC 100, Kabel 4m Pojedynczy włącznik nożny do ARC 100, kabel 4 m Single-pedal footswitch for ARC 100, cable 4m Однопедальный ножной переключатель для ARC 100, кабель 4 м Interruptor de pedal simple para ARC 100, cable 4m			●


9.3 Kommunikations-Interface ARC – ARC PLUS
 Interfejs komunikacyjny ARC – ARC PLUS
 Communication interface ARC – ARC PLUS
 Интерфейс коммуникационный ARC – ARC PLUS
 Interfaz de comunicación ARC – ARC PLUS

	2 Lichtwellenleiter 2 światłowody 2 Fibre optics 2 Гибких оптических кабеля 2 Cables de fibra optica	
	901-051	ARC PLUS (900-001) 135 mm
	901-052	ARC PLUS (900-000) 175 mm

9.4 Netzkabel
 Kabel sieciowy
 Mains cable
 Кабель сетевой
 Cable de red

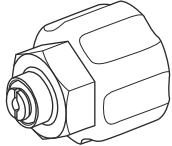
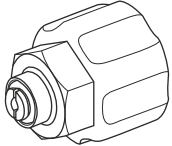
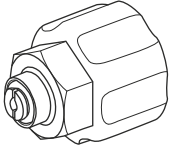
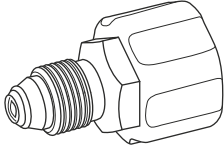
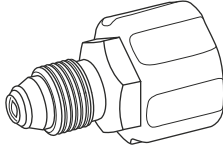
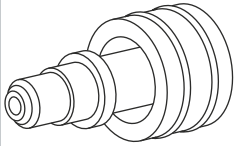
	<p>900-911</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ F Schuko Kabel sieciowy, dł. 5 m, wtyczka typu F Schuko Mains cable, length 5 m, with plug type F Schuko Кабель сетевой, длина 5 м, со штекером типа F Schuko Cable de red, longitud 5 m con clavija tipo F Schuko</p>
	<p>900-912</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ G Kabel sieciowy, dł. 5 m, wtyczka typu G Mains cable, length 5 m, with plug type G Кабель сетевой, длина 5 м, со штекером типа G Cable de red, longitud 5 m con clavija tipo G</p>
	<p>900-913</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ K Kabel sieciowy, dł. 5 m, wtyczka typu K Mains cable, length 5 m, with plug type K Кабель сетевой, длина 5 м, со штекером типа K Cable de red, longitud 5 m con clavija tipo K</p>
	<p>900-914</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ L Kabel sieciowy, dł. 5 m, wtyczka typu L Mains cable, length 5 m, with plug type L Кабель сетевой, длина 5 м, со штекером типа L Cable de red, longitud 5 m con clavija tipo L</p>
	<p>900-915</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ N Kabel sieciowy, dł. 5 m, wtyczka typu N Mains cable, length 5 m, with plug type N Кабель сетевой, длина 5 м, со штекером типа N Cable de red, longitud 5 m con clavija tipo N</p>
	<p>900-916</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ B Kabel sieciowy, dł. 5 m, wtyczka typu B Mains cable, length 5 m, with plug type B Кабель сетевой, длина 5 м, со штекером типа B Cable de red, longitud 5 m con clavija tipo B</p>
	<p>900-917</p>	<p>Netzkabel, Länge 5 m, mit Stecker Typ I Kabel sieciowy, dł. 5 m, wtyczka typu I Mains cable, length 5 m, with plug type I Кабель сетевой, длина 5 м, со штекером типа I Cable de red, longitud 5 m con clavija tipo I</p>

9.5 Potentialausgleichsleitung
Przewód wyrównania potencjału
Equipotential bonding
Кабель выравнивания потенциалов
Conductor equipotencial

	900-031	Potentialausgleichsleitung, Länge 5 m Przewód wyrównania potencjału, dł. 5 m PE-line, length 5 m Кабель выравнивания потенциалов, длина 5 м Conductor equipotencial, 5 m de largo
	900-035	Potentialausgleichsleitung, Länge 1.5 m Przewód wyrównania potencjału, dł. 1.5 m PE-line, length 1.5 m Кабель выравнивания потенциалов, длина 1,5 м Conductor equipotencial, 1.5 m de largo
	900-030	Potentialausgleichsleitung, Länge 0.5 m Przewód wyrównania potencjału, dł. 0.5 m PE-line, length 0.5 m Кабель выравнивания потенциалов, длина 0,5 м Conductor equipotencial, 0.5 m de largo

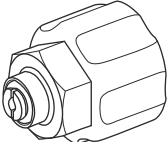
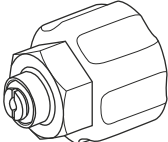
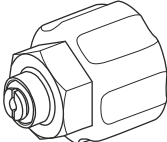
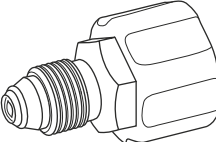
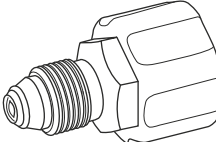
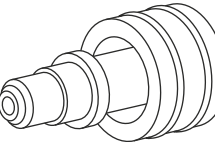
9.6 Druckminderer für ARC PLUS REF 900-000
 Reduktor ciśnienia
 Pressure reducer
 Редуктор давления
 Manorreducer



					
900-901	900-902	900-922	900-903	900-904	900-924
DIN 477, No. 6	DIN 477, No. 10	ГОСТ G 3/4"	CGA 580	BS 341, No. 3	ISO 5145, No. 4
Central Europe, Eastern Europe, Spain	Netherlands, Northern Europe	Commonwealth of Independent states (CIS)	America, Far East, Italy, UAE	Commonwealth, Turkey	Europe, France
W 21.8 x 1/14"	W 24.32 x 1/14"	ГОСТ G 3/4"	0.965"-14 NGO i (W 24.511 x 1/14" INT)	G 5/8" BSPF G 5/8" INT	W 24x2 RH Ø13.3/14.7

9.7 Druckminderer für ARC PLUS REF 900-001
 Reduktor ciśnienia
 Pressure reducer
 Редуктор давления
 Manorreductor



					
900-906	900-907	900-921	900-908	900-909	900-923
DIN 477, No. 6	DIN 477, No. 10	ГОСТ G 3/4"	CGA 580	BS 341, No. 3	ISO 5145, No. 4
Central Europe, Eastern Europe, Spain	Netherlands, Northern Europe	Commonwealth of Independent states (CIS)	America, Far East, Italy, UAE	Commonwealth, Turkey	Europe, France
W 21.8 x 1/14"	W 24.32 x 1/14"	ГОСТ G 3/4"	0.965"-14 NGO i (W 24.511 x 1/14" INT)	G 5/8" BSPF G 5/8" INT	W 24x2 RH Ø 13.3/14.7

9.8 Argon Gasflasche
 Butla na argon
 Gas cylinder Argon
 Баллон для газа аргон
 Botella de gas argón



	900-806	<p>Gasflasche Argon, 5 l, Anschluss DIN477 Nr. 6, leer Butla na argon, 5 l, zawór DIN477 nr 6, pusta Gas cylinder Argon, 5 l, connection DIN477 no. 6, empty Баллон для газа аргон, 5 л, соединение по DIN477 № 6, пустой Botella de gas argón, 5 l, conexión DIN477 no. 6, vacía</p>
	900-807	<p>Gasflasche Argon, 5 l, Anschluss DIN477 Nr. 10, leer Butla na argon, 5 l, zawór DIN477 nr 10, pusta Gas cylinder Argon, 5 l, connection DIN477 no. 10, empty Баллон для газа аргон, 5 л, соединение по DIN477 № 10, пустой Botella de gas argón, 5 l, conexión DIN477 no. 10, vacía</p>
	900-808	<p>Gasflasche Argon, 5 l, Anschluss CGA Nr. 580, leer Butla na argon, 5 l, zawór CGA nr 580, pusta Gas cylinder Argon, 5 l, connection CGA no. 580, empty Баллон для газа аргон, 5 л, соединение CGA № 580, пустой Botella de gas argón, 5 l; conexión CGA no. 580, vacía</p>
	900-809	<p>Gasflasche Argon, 5 l, Anschluss BS 341 Nr. 3, leer Butla na argon, 5 l, zawór BS 341 nr 3, pusta Gas cylinder Argon, 5 l, connection BS 341 no. 3, empty Баллон для газа аргон, 5 л, соединение BS 341 № 3, пустой Botella de gas argón, 5 l, conexión BS 341 no. 3, vacía</p>

<p>10.1 Gerätewagen ARC CART</p> <p>10.2 Optionen Vorderseite</p> <p>10.3 Optionen Rückseite</p> <p>10.4 Zubehör</p>	<p>10.1 Wózek ARC CART</p> <p>10.2 Opcje na stronę przednią</p> <p>10.3 Opcje na stronę tylną</p> <p>10.4 Akcesoria</p>	<p>10.1 Trolley ARC CART</p> <p>10.2 Options front side</p> <p>10.3 Options rear side</p> <p>10.4 Accessories</p>
<p>10.1 Тележка для аппаратов ARC CART</p> <p>10.2 Комплектующие (крепление спереди)</p> <p>10.3 Комплектующие (крепление сзади)</p> <p>10.4 Принадлежности</p>	<p>10.1 Carro ARC CART</p> <p>10.2 Opciones parte delantera</p> <p>10.3 Opciones parte trasera</p> <p>10.4 Accesorios</p>	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

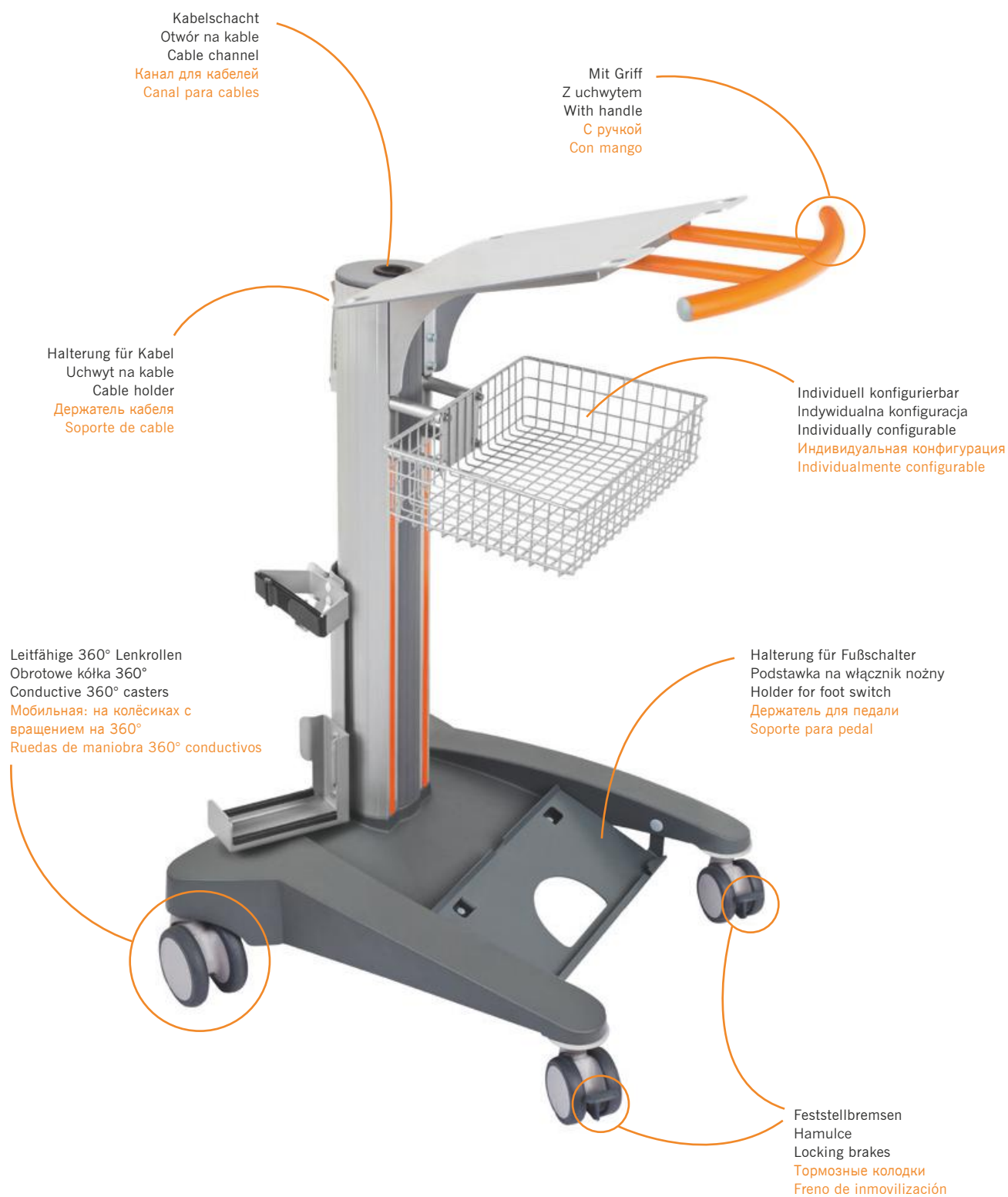
Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

10.1 Gerätewagen ARC CART
Wózek ARC CART
Trolley ARC CART
Тележка для аппаратов ARC CART
Carro ARC CART



	902-050	<p>ARC CART</p> <p>mit Korb vorne, montiert z koszykiem przednim, zmonto- wany with frontal basket, assembled Тележка с корзиной, в сборе cesta de frente, montado</p>
	inkl. / w tym / incl. / в т.ч. / incl.	
		902-022
		902-912
		902-921
		902-917
		902-913
		902-911 (3x)
		902-100

10.1 Gerätewagen ARC CART
 Wózek ARC CART
 Trolley ARC CART
 Тележка для аппаратов ARC CART
 Carro ARC CART







	902-053	ARC CART Gerätewagen mit Schublade, montiert Wózek z szufladą, zmontowany Equipment trolley with drawer, assembled Тележка с ящиком, в сборе Carro porta equipo, con gaveta, montado
	inkl. / w tym / incl. / в т.ч. / incl.	
		902-022
		902-921
		902-906
		902-909
		902-917
		902-914
		902-911 (3 x)
		902-100

	902-054	ARC CART für SHE SHA, montiert do SHE SHA, zmontowany for SHE SHA, assembled Тележка для SHE SHA, в сборе carro para SHE SHA, montado
	inkl. / w tym / incl. / в т.ч. / incl.	
		902-022
		902-920
		902-912
		902-921
		902-917
		902-913
		902-911 (4 x)
		902-100



10.1 Gerätewagen ARC CART
 Wózek ARC CART
 Trolley ARC CART
 Тележка для аппаратов ARC CART
 Carro ARC CART

	<p>ARC CART</p> <p>Gerätewagen für SHE SHA und LOTUS, montiert Wózek dla SHE SHA i LOTUS, zmontowany Equipment trolley for SHE SHA and LOTUS, assembled Тележка для SHE SHA и LOTUS, в сборе Carro para SheSha y LOTUS, montado</p>	
	<p>902-055</p>	
	<p>inkl. / w tym / incl. / в т.ч. / incl.</p>	
		<p>902-022</p>
		<p>902-924</p>
		<p>902-920</p>
		<p>902-921</p>
		<p>902-917</p>
		<p>902-913</p>
		<p>902-923</p>
	<p>902-911 (4x)</p>	
	<p>902-100</p>	

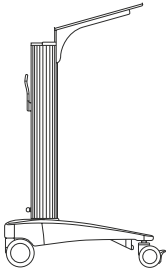






902-056	<p>ARC CART</p> <p>Gerätewagen für LOTUS mit Korb vorne, montiert Wózek dla LOTUS z koszykiem przednim, zmontowany Equipment trolley for LOTUS with frontal basket, assembled Тележка для LOTUS с корзиной, в сборе Carro para LOTUS, montado, com cesta frontal</p>
inkl. / w tym / incl. / в т.ч. / incl.	
	902-022
	902-924
	902-912
	902-921
	902-917
	902-923
	902-911 (4 x)
	902-100

10.1 Gerätewagen ARC CART
 Wózek ARC CART
 Trolley ARC CART
 Тележка для аппаратов ARC CART
 Carro ARC CART

	902-070	LOTUS CART Gerätewagen, montiert Wózek, zmontowany Equipment trolley, assembled Тележка, в сборе Carro, montado
	inkl. / w tym / incl. / в т.ч. / incl.	
		902-024
		902-912
		902-921
		902-911 (4 x)
		902-100


10.2 Optionen Vorderseite
 Opcje na stronę przednią
 Options front side
 Комплектующие (крепление спереди)
 Opciones parte delantera

	<p>902-022</p>	<p>ARC CART, Gerätewagen ARC CART, wózek ARC CART, equipment trolley ARC CART, тележка ARC CART, carro porta equipo</p> <p>BOWA BOWA A R C A R C 2 5 0 3 0 3</p> <p>BOWA BOWA A R C A R C 3 5 0 4 0 0</p>
	<p>902-920</p>	<p>Geneigter Stellboden, für SHE SHA (950-001) an ARC CART Ukośna półka pod SHE SHA, do ARC CART Angled equipment shelf, for SHE SHA (950-001), for ARC CART ARC CART, наклонная полка для SHE SHA (REF 950-001) Repisa inclinada, para SHE SHA (950-001) para ARC CART</p>
	<p>902-924</p>	<p>Geneigter Stellboden, für LOTUS LG4 an ARC CART ARC CART, ukośna półka pod LOTUS LG4 ARC CART, angled equipment shelf, for LOTUS LG4 ARC CART, наклонная полка для LOTUS LG4 ARC CART, repisa inclinada, for LOTUS LG4</p>
<p>oder / lub / or / или / o</p>		
	<p>902-912</p>	<p>Ablagekorb, vorne, für ARC CART Koszyk odkładczy, przedni, do ARC CART Filing basket, front side, for ARC CART ARC CART, корзина, крепление спереди Cesta de frente, para ARC CART</p>
<p>oder / lub / or / или / o</p>		
	<p>902-906</p>	<p>Schublade mit Abdeckung, für ARC CART Szuflada z pokrywą, do ARC CART Drawer with cover, for ARC CART ARC CART, ящик с крышкой Gaveta con tapa, para ARC CART</p>
	<p>902-909</p>	<p>Zusatzschublade, für ARC CART Dodatkowa szuflada, do ARC CART Additional drawer, for ARC CART ARC CART, дополнительный ящик Gaveta adicional, para ARC CART</p>
	<p>902-921</p>	<p>ARC CART, Griff ARC CART, uchwyt ARC CART, handle ARC CART, ручка для тележки, крепление спереди ARC CART, manija</p>

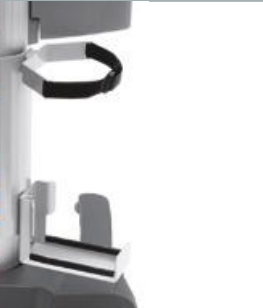
10.3 Optionen Rückseite
 Opcje na stronę tylną
 Options rear side
 Комплектующие (крепление сзади)
 Opciones parte trasera

	<p>902-900</p>	<p>Gasflaschenhalterung, für ARC CART Uchwyt na butlę gazową, do ARC CART Gas cylinder attachment, for ARC CART ARC CART, крепление для баллонов Soporte para bombona de gas para ARC CART</p>
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oder / lub / or / или / o

	<p>902-908</p>	<p>Geschlossene Gasflaschenhalterung, für ARC CART Zamknięty pojemnik na butlę gazową, do ARC CART Closed gas cylinder attachment, for ARC CART ARC CART, закрытое крепление для баллонов Soporte cerrado para bombona de gas, para ARC CART</p>
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oder / lub / or / или / o


	<p>902-913</p>	<p>Gasflaschenhalterung, für ARC CART Uchwyt na butlę gazową, do ARC CART Gas cylinder attachment, for ARC CART ARC CART, крепление для баллона, одинарное Soporte para bombona de gas para ARC CART</p>
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oder / lub / or / или / o


	<p>902-914</p>	<p>Geschlossene Gasflaschenhalterung, für ARC CART Zamknięty pojemnik na butlę gazową, do ARC CART Closed gas cylinder attachment, for ARC CART ARC CART, закрытое крепление для баллона, одинарное Soporte cerrado para bombona de gas, para ARC CART</p>
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oder / lub / or / или / o

	<p>902-917</p>	<p>Halterung für Einpedal Fußschalter Uchwyt na pojedynczy włącznik nożny, do ARC CART Holder for single-pedal foot switch ARC CART, держатель однопедального ножного переключателя Soporte para pedal simple</p>
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	902-917	Halterung für Einpedal Fußschalter Uchwyt na pojedynczy włącznik nożny, do ARC CART Holder for single-pedal foot switch ARC CART, держатель однопедального ножного переключателя Soporte para pedal simple
	902-913	Gasflaschenhalterung, für ARC CART Uchwyt na butlę gazową, do ARC CART Gas cylinder attachment, for ARC CART ARC CART, крепление для баллона, одинарное Soporte para bombona de gas para ARC CART







oder / lub / or / или / o

	902-917	Halterung für Einpedal Fußschalter Uchwyt na pojedynczy włącznik nożny, do ARC CART Holder for single-pedal foot switch ARC CART, держатель однопедального ножного переключателя Soporte para pedal simple
	902-914	Geschlossene Gasflaschenhalterung, für ARC CART Zamknięty pojemnik na butlę gazową, do ARC CART Closed gas cylinder attachment, for ARC CART ARC CART, закрытое крепление для баллона, одинарное Soporte cerrado para bombona de gas, para ARC CART

	902-923	ARC CART, Griff Rückseite ARC CART, uchwyt tylny ARC CART, handle rear side ARC CART, ручка для тележки, крепление сзади ARC CART, manija parte trasera
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10.4 Zubehör

Aksesoria
Accessories
Принадлежности
Accesorios

	902-911	Anschluss Potentialausgleichsleitung Złącze wyrównania potencjału Connector PE-line ARC CART, разъем для выравнивания потенциалов Conector para cable equipotencial
	902-922	ARC CART, Sicherungskit ARC CART, zestaw zabezpieczający ARC CART, Securing kit ARC CART, крепежный комплект ARC CART, Kit de Fijación
	902-915	Ersatzband Gasflaschenhalter Zapaszowy pasek do mocowania butli z gazem Replacement strap for gas cylinder attachment ARC CART, сменный ремень крепления для баллона Banda de reserva para soporte de botella
	902-918	Kabel- und Fußschalter Halterung für Normschiene Uchwyt na kabel i włącznik nożny do wspornika montażowego Cable and foot switch holder for standard rail Держатель кабеля и педали для стандартной шины Soporte para cable y pedal, para riel normalizado
	902-919	Normschiene Wspornik montażowy Standard rail Стандартная шина Riel normalizado
	902-100	Montage ARC CART Montaż ARC CART ARC CART assembly ARC CART, сборка ARC CART montaje

11 SHE SHA Rauchgasabsaugung
 System odsysania dymu SHE SHA
 SHE SHA Smoke Evacuation System
 SHE SHA Система эвакуации дыма
 SHE SHA Aspirador de humos quirúrgicos

11.1 SHE SHA Rauchgasabsaugung 11.2 SHE SHA 11.3 Adapter Handgriffe 11.5 Zubehör SHE SHA REF 950-000	11.1 System odsysania dymu SHE SHA 11.2 SHE SHA 11.3 Adaptery do uchwytów 11.4 Akcesoria SHE SHA REF 950-000	11.1 SHE SHA Smoke Evacuation System 11.2 SHE SHA 11.3 Adaptors handles 11.4 Accessories SHE SHA REF 950-000
11.1 SHE SHA Система эвакуации дыма 11.2 SHE SHA 11.3 Насадки для держателей электродов 11.4 Принадлежности SHE SHA REF 950-000	11.1 SHE SHA Aspirador de humos quirúrgicos 11.2 SHE SHA 11.3 Adaptadores mangos 11.4 Accesorios SHE SHA REF 950-000	

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.

Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

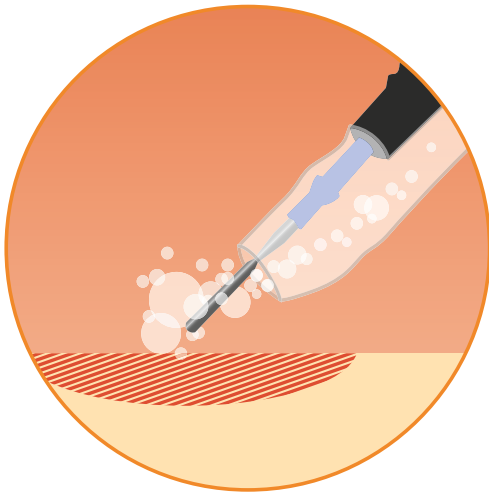
Los productos están certificados según la norma 93 / 42 / CEE

11.1 SHE SHA Rauchgasabsaugung
System odsysania dymu SHE SHA
SHE SHA Smoke Evacuation System
SHE SHA Система эвакуации дыма
SHE SHA Aspirador de humos quirúrgicos



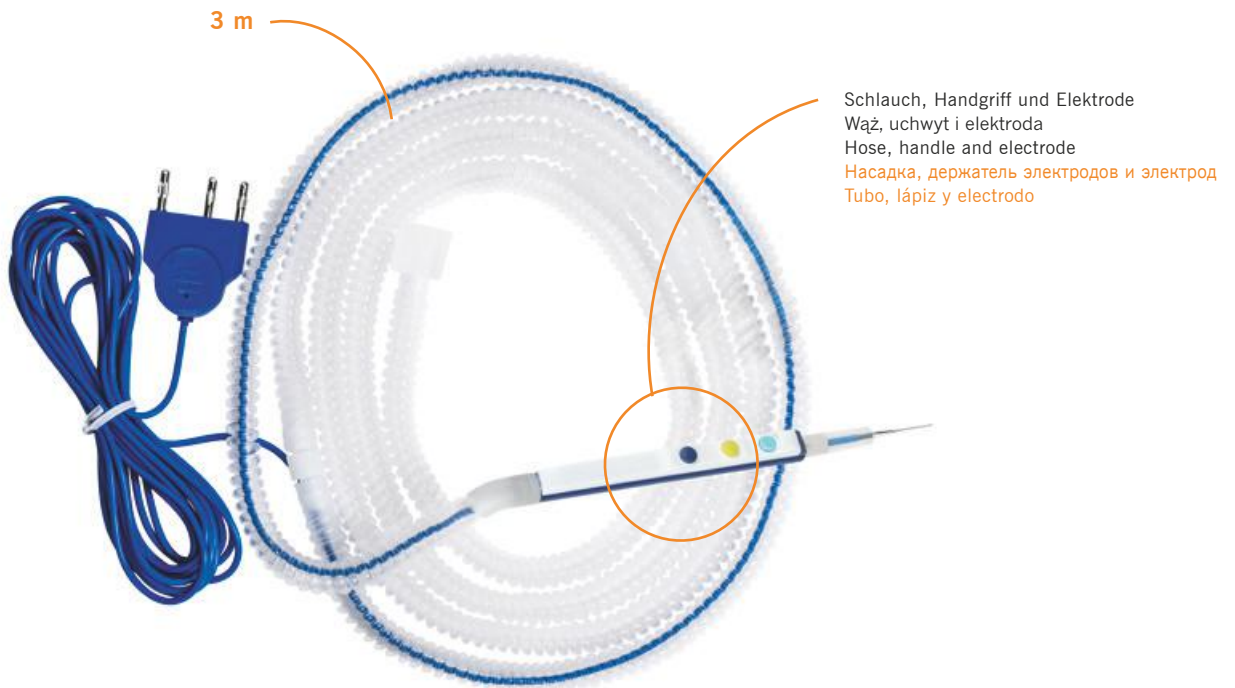
Effizienter Gesundheitsschutz – Leise
Skuteczna ochrona zdrowia – Cicha
Efficient health protection – Quiet
Эффективная защита здоровья – Тихая
Protección eficiente de la salud – Silencioso

Automatische Aktivierung über Sensor mit allen elektrochirurgischen Geräten
Automatyczna aktywacja z możliwością kombinacji ze wszystkimi urządzeniami elektrochirurgicznymi
Automatic activation combinable with all devices
Автоматическая активация в комбинации со всеми устройствами
Activación automática por sensor con todos los equipos quirúrgicos



99.999% Filtereffizienz
Wydajność filtra 99.999%
99.999% filter efficiency
99,999% эффективность
фильтрации
99.999% eficiencia del filtro

3 Leistungsstufen
3 stopnie wydajności
3 power levels
3 уровня мощности
3 niveles de potencia



Max. 55 db (Gesprächslautstärke)
 Maks. 55 db (poziom głośności rozmowy)
 Max. 55 db (voice volume)
 Макс. 55 дБ (громкость голоса)
 Máx. 55 db (ruido de conversación)

Automatische Filtererkennung Plug'n Play
 Automatyczna detekcja filtra plug'n play
 Automatic plug'n play filter recognition
 Автоматическое распознавание фильтра Plug'n Play
 Identificación automática del filtro por plug'n play



Extra lange Filterlebensdauer für max. 35 Stunden Aktivierung
 Bardzo długa żywotność filtra do maks. 35 godzin aktywnej pracy
 Extra-long filter life for max. 35 hours of activation
 Повышенный срок службы фильтра, макс. 35 часов активации
 Duración del filtro extralarga para máx. 35 horas de activación

3-Port-Filter mit Berührungsschutz
 Filtr 3-portowy z ochroną przed przypadkowym dotknięciem
 3-port filter with protection against accidental contact
 3-портовый фильтр с защитой от случайного контакта
 Filtro de 3 puertos con protección contra el contacto

1/4"
[8,4 mm]



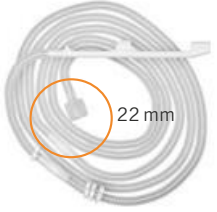
3/8"
[9,5 mm]

7/8"
[22 mm]

11.2 SHE SHA

	<p>950-001</p>	<p>SHE SHA Rauchgasabsaugung inkl. Aktivierungssensor, pneumatischem Fußschalter System odsysania dymu SHE SHA zawiera czujnik aktywujący, pneumatyczny włącznik nożny SHE SHA smoke evacuation system incl. remote sensor and pneumatic foot switch SHE SHA система эвакуации дыма, в т.ч. дистанционный датчик и пневматическая педаль SHE SHA Aspirador de humos quirúrgicos incl. sensor de activación y pedal neumático</p> <p>Ohne Filter Bez filtra Without filter без фильтра Sin filtro</p>
	<p>951-001</p>	<p>SHE SHA (950-001) Filter für 35 Stunden / 2 Stk. SHE SHA (950-001) filtr na 35 godzin / 2 szt. SHE SHA (950-001) filter for 35 hours / 2 pcs. SHE SHA (950-001) фильтр на 35 часов работы / 2 шт. Filtro SHE SHA (950-001) para 35 horas / 2 uds.</p>

11.3 Adapter Handgriffe Adaptory do uchwytów Adaptors handles Насадки для держателей электродов Adaptadores mangos

	<p>802-033</p>	<p>SHE SHA Handgriff, längenverstellbar, 2 Tasten, Messer, 3 m, Einweg, steril (10 Stk.) inkl. Holster Uchwyt SHE SHA, regulowany, 2 przyciski, nóż, 3 m, jednorazowego użytku, sterylne (10 szt.) zawiera futerał SHE SHA handle, adjustable length, 2 buttons, knife electrode, 3 m, single-use, sterile (10 pcs.) incl. holster SHE SHA держатель с электродом-ножом, регулируемый, 2-кнопочный, 3 м, одноразовый, стерильный (10 шт.), в т.ч. чехол Lápiz SHE SHA, ajustable en longitud, 2 botones, cuchilla, 3 m, desechable, esterilizado (10 uds.) incl. funda</p>
	<p>802-032</p>	<p>SHE SHA Handgriff, 2 Tasten, Messer, 3 m, Einweg, steril / 10 Stk. / inkl. Holster Uchwyt SHE SHA, 2 przyciski, nóż, 3 m, jednorazowego użytku, sterylne / 10 szt. / zawiera futerał SHE SHA handle, 2 buttons, knife electrode, 3 m, single-use, sterile / 10 pcs. / incl. holster SHE SHA держатель с электродом-ножом, 2-кнопочный, 3 м, одноразовый, стерильный (10 шт.), в т.ч. чехол Lápiz SHE SHA, 2 botones, cuchilla, 3 m, desechable, esterilizado / 10 uds. / incl. funda</p>
 <p>22 mm</p>	<p>952-001</p>	<p>SHE SHA Schlauch, für Handgriff, 3 m, Einweg, steril / 10 Stk. Wąż SHE SHA, do uchwytu, 3 m, jednorazowego użytku, sterylne / 10 szt. SHE SHA hose for handle, 3 m, single-use, sterile / 10 pcs. SHE SHA насадка для держателей электродов, одноразовая, стерильная (10 шт.) Tubo SHE SHA, para lápiz, 3 m, desechable, esterilizado / 10 uds.</p>




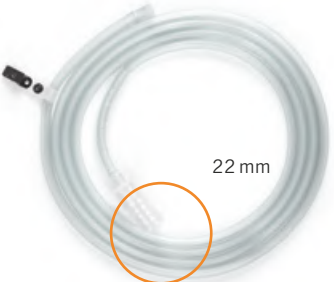
11.3 Adapter Handgriffe
 Adaptery do uchwytów
 Adaptors handles
 Насадки для держателей электродов
 Adaptadores mangos



STERILE

R



 <p>Powered By BUFFALO Filter®</p> <p>Schlauch 7/8" (22 mm) Wąż 7/8" (22 mm) Tubing 7/8" (22 mm) Трубка 22мм Manguera 7/8" (22 mm)</p>	<p>952-000</p>	<p>Schlauch für Handgriff SHE SHA / 10 Stk. / 3 m Wąż do uchwytu SHE SHA / 10 szt. / 3 m Hose for pencil SHE SHA / 10 pcs. / 3 m SHE SHA насадка для держателей электродов / 10 шт. / 3 м Manguera para mangos SHE SHA / 10 uds. / 3 m</p> <p>Für / Do / For / Для / Para 801-030; 802-030; 322-045; 110-045; 112-045; 227-045; 327-045; 220-145; 220-045; 120-145; 120-045; 220-245</p>	
	<p>952-100</p>	<p>Schlauch für Handgriff SHE SHA, klein / 10 Stk. / 3 m Wąż do uchwytu SHE SHA, mały / 10 szt. / 3 m Hose for pencil SHE SHA, small / 10 pcs. / 3 m SHE SHA насадка для коротких держателей электродов / 10 шт. / 3 м Manguera para mangos SHE SHA, delgado / 10 uds. / 3 m</p> <p>Für / Do / For / Для / Para 215-045; 104-045; 214-045; 218-045; 105-045; 330-030; 100-016; 210-030; 219-030; 335-030</p>	
 <p>22 mm</p>	<p>952-200</p>	<p>Schlauch SHE SHA für Laparoskopie mit Luer Lock / 3 m Wąż SHE SHA do laparoskopii z Luer Lock / 3 m Hose SHE SHA for laparoscopy with Luer Lock / 3 m SHE SHA насадка для лапароскопии с Luer Lock / 3 м Manguera SHE SHA para laparoscopia con Luer Lock / 3 m</p>	

11.4 Zubehör SHE SHA REF 950-000
 Akcesoria SHE SHA REF 950-000
 Accessories SHE SHA REF 950-000
 Принадлежности SHE SHA REF 950-000
 Acessorios SHE SHA REF 950-000

 <p>Powered By BUFFALO Filter®</p>	<p>951-000</p>	<p>Filter SHE SHA (950-000) 8 Stunden – 7/8" (22 mm) 8-godzinny filtr SHE SHA (950-000) – 7/8" (22 mm) Filter SHE SHA (950-000) 8 hours – 7/8" (22 mm) Фильтр SHE SHA (950-000) 8 часов – 7/8" (22 мм) Filtro SHE SHA (950-000) 8 horas – 7/8" (22 mm)</p>	
	<p>952-300</p>	<p>Vorfilter SHE SHA (950-000) Filtr wstępny (950-000) Pre-filter SHE SHA (950-000) Предварительный фильтр SHE SHA (950-000) Prefiltro SHE SHA (950-000)</p>	

12 Set Empfehlungen
 Rekomendowane zestawy
 Set recommendations
 Рекомендации по комплектации
 Set recomendaciones

12.1	Zubehör Set	12.1	Zestaw akcesoriów	12.1	Accessories set
12.2	ARC 100 Kompletset	12.2	ARC 100 Kompletny zestaw	12.2	ARC 100 Complete set
12.3	NightKNIFE® & LIGATOR® Set	12.3	Set NightKNIFE® & LIGATOR®	12.3	NightKNIFE® & LIGATOR® Set
12.4	Set Chirurgie	12.4	Set Chirurgia	12.4	Set Surgery
12.5	Set Argon Chirurgie	12.5	Set Chirurgia argonowa	12.5	Set Argon Surgery
12.6	Set Gynäkologie	12.6	Set Ginekologia	12.6	Set Gynaecology
12.7	Set Urologie	12.7	Set Urologia	12.7	Set Urology
12.8	Set Gastroenterologie	12.8	Set Gastroenterologia	12.8	Set Gastroenterology
12.9	Set Herzchirurgie	12.9	Set Kardiochirurgia	12.9	Set Cardiac Surgery
12.10	Set Orthopädie	12.10	Set Ortopedia	12.10	Set Orthopedics
12.11	Set Kinderchirurgie	12.11	Set Chirurgia dziecięca	12.11	Set Pediatric Surgery
12.12	Set Neurochirurgie	12.12	Set Neurochirurgia	12.12	Set Neuro Surgery
12.13	Set Plastische und Ästhetische Chirurgie	12.13	Set Chirurgia plastyczna i estetyczna	12.13	Set Plastic and Aesthetic Surgery
12.1	Набор принадлежностей	12.1	Set accesorios	12.1	Set accesorios
12.2	Набор для ARC 100	12.2	ARC 100 Juego completo	12.2	ARC 100 Juego completo
12.3	NightKNIFE® & LIGATOR® набор	12.3	NightKNIFE® & LIGATOR® Set	12.3	NightKNIFE® & LIGATOR® Set
12.4	Хирургический набор	12.4	Set Cirugía	12.4	Set Cirugía
12.5	Набор для аргонплазменной хирургии	12.5	Set Cirugía argón	12.5	Set Cirugía argón
12.6	Набор для гинекологии	12.6	Set Ginecología	12.6	Set Ginecología
12.7	Набор для урологии	12.7	Set Urología	12.7	Set Urología
12.8	Набор для гастроэнтерологии	12.8	Set Gastroenterología	12.8	Set Gastroenterología
12.9	Набор для кардиохирургии	12.9	Set Cirugía cardiovascular	12.9	Set Cirugía cardiovascular
12.10	Набор для ортопедии	12.10	Set Ortopedia	12.10	Set Ortopedia
12.11	Набор для детской хирургии	12.11	Set Cirugía pediátrica	12.11	Set Cirugía pediátrica
12.12	Набор для нейрохирургии	12.12	Set Neurocirugía	12.12	Set Neurocirugía
12.13	Набор для пластической и эстетической хирургии	12.13	Set Cirugía estética y plástica	12.13	Set Cirugía estética y plástica

<p>Alle wiederverwendbaren Instrumente werden im unsterilen Zustand angeliefert und können bei 134 °C / 20 min sterilisiert werden.</p> <p>Alle Einmalprodukte sind nicht für den mehrmaligen Gebrauch vorgesehen.</p> <p>Für die allgemeine Wischdesinfektion können handelsübliche Mittel verwendet werden.</p> <p>Für unsachgemäße Reinigung, Sterilisation und Anwendung kann seitens BOWA keine Haftung übernommen werden.</p> <p>Die Produkte tragen das CE Zeichen nach Richtlinie 93 / 42 / EWG</p>	<p>Wszystkie instrumenty wielokrotnego użytku dostarczane są w niesterylnej postaci i mogą być poddawane sterylizacji w temperaturze 134 °C przez 20 min.</p> <p>Wszystkie instrumenty jednorazowego użytku nie są przeznaczone do powtórnego wykorzystania.</p> <p>Do czyszczenia i dezynfekcji można używać preparatów ogólnie dostępnych na rynku.</p> <p>BOWA nie bierze odpowiedzialności za niewłaściwe czyszczenie, sterylizację i użycie.</p> <p>Produkty są certyfikowane według 93 / 42 / EEC</p>	<p>All reusable instruments are supplied in an unsterile state and can be sterilised at 134 °C for 20 min.</p> <p>All single-use products are not intended for multiple usage.</p> <p>Commercially available agents can be used for general wiping and disinfection.</p> <p>BOWA can accept no liability for improper cleaning, sterilisation and use.</p> <p>The products are certified according to 93 / 42 / EEC</p>
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Все инструменты многократного использования поставляются в нестерильном виде и должны быть простерилизованы при температуре не выше 134 °C в течение 20 минут.

Вся одноразовая продукция не предназначена для многократного использования.

Для протирания и дезинфекции можно использовать имеющиеся препараты.

BOWA не несет ответственности за неправильную очистку, стерилизацию и использование.

Продукция сертифицирована согласно 93 / 42 / EEC

Todos los instrumentos reutilizables se suministran en estado no estéril y deben ser esterilizados a 134 °C / 20 min.

Todos los productos desechables no son previstos para reutilización.








Para la desinfección superficial general pueden utilizarse productos comerciales corrientes.

BOWA no asume ningún tipo de responsabilidad por la limpieza, la esterilización y la utilización indebida.

Los productos están certificados según la norma 93 / 42 / CEE

12.1 Zubehör-Set
Zestaw akcesoriów
Accessories set
Набор принадлежностей
Set accesorios



	901-140 SET Ø 4 mm	901-124 SET Ø 2.4 mm
	500-000	530-000
	215-045	218-045
	333-001	333-001
	816-112	816-112
	380-050	380-050
	605-040	605-040
	351-040	351-040





12.2 ARC 100 Komplettsset
Kompletny zestaw
Complete set
Набор
Juego completo





	901-126
	530-000
	220-045
	816-072
	386-050
	605-040
	287-040
	901-012

Optionales Zubehör
 Opcjonalne akcesoria
 Optional accessories
 Дополнительные принадлежности
 Accesorios opcionales

	220-345
	385-050
	232-003
	194-075

12.3 NightKNIFE® & LIGATOR® Set – Container & Tray



773-000

773-001



773-981

773-981



773-980

773-980



770-000

770-000



770-320

770-320

770-336

770-336



771-120

771-121

771-136

771-137



773-000

773-001



770-999



770-211

770-211

770-236

770-236



771-011

771-011

771-036

771-036



772-011

772-011

772-036

772-036

12.4 Set Chirurgie
 Chirurgia
 Surgery
 Набор для хирургии
 Cirugía














	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN (OFFEN) ROZSZERZONY ADVANCED (OPEN) РАСШИРЕННЫЙ (ОТКРЫТАЯ) AVANZADO (ABIERTO)
	900-303	900-400
		900-396
	901-021	901-032
		901-011
	220-045	220-045
	530-207	530-207
		530-000
	380-050	380-050
	816-092	816-092
	351-040	351-040
	605-040	605-040
	605-034	605-002
		378-045
		797-230
		760-216
		760-219
		760-223
		760-228






	BASIS (LAPAROSKOPIE) PODSTAWOWY (LAPAROSKOPIA) BASIC (LAPAROSCOPY) БАЗОВЫЙ (ЛАПАРОСКОПИЯ) BÁSICO (LAPAROSCOPIA)	FORTGESCHRITTEN (LAPAROSKOPIE) ROZSZERZONY (LAPAROSKOPIA) ADVANCED (LAPAROSCOPY) РАСШИРЕННЫЙ (ЛАПАРОСКОПИЯ) AVANZADO (LAPAROSCOPIA)
	900-303	900-400
		900-396
	901-021	901-031
		901-011
	220-045	220-045
	530-207	530-207
		530-000
	380-050	380-050
	816-092	816-092
	280-050	280-050
	700-005	700-004
	280-035	700-005
		280-035
		351-040
		605-040
		770-503
		775-000

12.5 Set Argon Chirurgie
 Chirurgia argonowa
 Argon Surgery
 Набор для аргоноплазменной хирургии
 Cirugía argón



	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-303	900-400
	900-392	900-396
	900-000	900-001
	900-90x	900-90x
	902-022	902-022
		902-912
	902-913	902-913
		901-011
	901-031	901-032
	380-050	380-050
	816-092	816-092
	220-045	220-045
	530-207	530-207
	351-040	351-040
	605-040	605-040
	605-034	605-034
	830-050	830-050











	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	932-042	932-042
	932-031	932-031
		932-032
	932-034	932-034
		932-044
		932-054
		932-056
		932-057
		760-223

12.6 Set Gynäkologie
 Ginecologia
 Gynaecology
 Набор для гинекологии
 Ginecología



	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN (OFFEN) ROZSZERZONY (OTWARTA) ADVANCED (OPEN) РАСШИРЕННЫЙ (ДЛЯ ОТКРЫТОЙ ХИРУРГИИ) AVANZADO (ABIERTO)	FORTGESCHRITTEN (LAPAROSKOPIE) ROZSZERZONY (LAPAROSKOPIA) ADVANCED (LAPAROSCOPY) РАСШИРЕННЫЙ (ДЛЯ ЛАПАРОСКОПИИ) AVANZADO (LAPAROSCOPIA)
	900-303	900-400	900-400
		900-396	900-396
		900-395	900-395
	901-031	901-032	901-032
		901-011	901-011
	380-050	380-050	380-050
	816-092	816-092	816-092
	220-045	220-045	
	530-207		
		530-000	
	351-040	351-040	
	605-040	605-040	
		605-002	











	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN (OFFEN) ROZSZERZONY (OTWARTA) ADVANCED (OPEN) РАСШИРЕННЫЙ (ДЛЯ ОТКРЫТОЙ ХИРУРГИИ) AVANZADO (ABIERTO)	FORTGESCHRITTEN (LAPAROSKOPIE) ROZSZERZONY (LAPAROSKOPIA) ADVANCED (LAPAROSCOPY) РАСШИРЕННЫЙ (ДЛЯ ЛАПАРОСКОПИИ) AVANZADO (LAPAROSCOPIA)
		797-230	
		378-045	
		760-219	
		760-223	
		760-228	
			700-005
			280-035
			520-115
			770-503
			775-000

12.7 Set Urologie
 Urologia
 Urology
 Набор для урологии
 Urología










	FORTGESCHRITTEN (OFFEN) ROZSZERZONY (OTWARTA) ADVANCED (OPEN) РАСШИРЕННЫЙ (ОТКРЫТАЯ) AVANZADO (ABIERTO)	FORTGESCHRITTEN (ARGON) ROZSZERZONY (ARGON) ADVANCED (ARGON) РАСШИРЕННЫЙ (АРГОН) AVANZADO (ARGON)
	900-400	900-400
	900-396	900-396
	900-395	900-395
		900-001
		900-90x
		902-022
		902-912
		902-913
		902-917
	901-011	901-011
	901-031	901-031
	380-050	380-050
	816-092	816-092
	220-045	220-045
	530-000	530-000
	351-040	351-040
	605-040	605-040
	605-002	605-002



	FORTGESCHRITTEN (OFFEN) ROZSZERZONY (OTWARTA) ADVANCED (OPEN) РАСШИРЕННЫЙ AVANZADO (ABIERTO)	FORTGESCHRITTEN (ARGON) ROZSZERZONY (ARGON) ADVANCED (ARGON) РАСШИРЕННЫЙ (АРГОН) AVANZADO (ARGON)
	798-230	798-230
	378-045	378-045
		830-050
		932-042
		932-031
		932-034
	760-223	760-223
		775-000

12.7 Set Urologie
 Urologia
 Urology
 Набор для урологии
 Urología



	BASIS (MONOPOLARE RESEKTION) PODSTAWOWY (RESEKCJA MONOPOLARNA) BASIC (MONOPOLAR RESECTION) БАЗОВЫЙ (МОНОПОЛЯРНАЯ РЕЗЕКЦИЯ) BÁSICO (RESECCIÓN MONOPOLAR)	FORTGESCHRITTEN (BIPOLARE RESEKTION) ROZSZERZONY (RESEKCJA BIPOLARNA) ADVANCED (BIPOLAR RESECTION) РАСШИРЕННЫЙ (БИПОЛЯРНАЯ РЕЗЕКЦИЯ) AVANZADO (RESECCIÓN BIPOLAR)
	900-303	900-400
		900-395
	901-021	901-032
	380-050	380-050
	816-092	816-092
	351-040	351-040
	605-040	605-040
	106-x45	35x-145

12.8 Set Gastroenterologie
 Gastroenterologia
 Gastroenterology
 Набор для гастроэнтерологии
 Gastroenterología



	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-250	900-400
	900-392	
	900-000	900-001
	900-90x	900-90x
	902-022	902-022
	902-906	902-906
	902-909	902-909
	902-913	902-913
	901-021	901-032
	380-050	380-050
	816-092	816-092
	431-045	431-045
	432-045	432-045
	830-050	830-050
	932-146	932-146
	932-249	932-249
		932-252
		932-253

12.9 Set Herzchirurgie
 Kardiochirurgia
 Cardiac Surgery
 Набор для кардиохирургии
 Cirugía cardiovascular



	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-303	900-400
	901-031	901-032
		901-011
	380-050	380-050
	816-092	816-092
	220-045	220-045
	530-207	530-207
	351-040	351-040
	605-040	605-040







12.10 Set Orthopädie
 Ortopedia
 Orthopedics
 Набор для ортопедии
 Ortopedia









	BASIS PODSTAWOWY BASIC БАЗОВЫЙ BÁSICO	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-303	900-400
	901-031	901-032
	380-050	380-050
	816-092	816-092
	220-045	220-045
	530-000	530-000
	351-040	351-040
	605-040	605-040

12.11 Set Kinderchirurgie
 Chirurgia dziecięca
 Pediatric Surgery
 Набор для детской хирургии
 Cirugía pediátrica



	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-400
	900-396
	900-001
	900-90x
	901-032
	380-050
	816-092
	220-045
	530-207
	530-211



	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	798-180
	378-045
	760-216
	830-050
	932-042
	932-032
	932-034












12.12 Set Neurochirurgie
 Neurochirurgia
 Neuro Surgery
 Набор для нейрохирургии
 Neurocirugía



	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-400
	901-032
	901-011
	380-050
	816-092
	220-045
	530-207
	530-211
	351-040
	607-002
	607-014
	607-020
	607-027
	607-039

12.13 Set Plastische und Ästhetische Chirurgie
 Chirurgia plastyczna i estetyczna
 Plastic and Aesthetic Surgery
 Набор для пластической и эстетической хирургии
 Cirugía estética y plástica



	FORTGESCHRITTEN ROZSZERZONY ADVANCED РАСШИРЕННЫЙ AVANZADO
	900-303
	901-031
	380-050
	816-092
	220-045
	530-207
	351-040
	607-002
	607-014
	607-020
	607-027
	607-039

Produktbeschreibung Opis produktu Product Description Описание продукции Descripción	Autoklavierzyklen Ilość cykli sterylizacji Autoclaving cycles Циклы автоклавирования Ciclos en autoclave	Beispiel Przykład Example Пример Ejemplo	Produktbeschreibung Opis produktu Product Description Описание продукции Descripción	Autoklavierzyklen Ilość cykli sterylizacji Autoclaving cycles Циклы автоклавирования Ciclos en autoclave	Beispiel Przykład Example Пример Ejemplo
ErgoPEN	200	110-045 215-045	Kabel – bipolare Resektion Kabel – Resekcja bipolarna Cable – Bipolar resection Кабель – Биполярная резекция Cable – Resección bipolar ERGO 315R	20	352-145 770-503
ErgoPEN COMFORT	100	215-145 218-145	Kabel – bipolare Resektion Kabel – Resekcja bipolarna Cable – Bipolar resection Кабель – Биполярная резекция Cable – Resección bipolar	50	354-145 355-145
Handgriffe JackKNIFE® Uchwyt JackKNIFE® Handles JackKNIFE® Держатели электродов JackKNIFE® Mango JackKNIFE®	200	220-145	COMFORT Anschlusskabel Kable przyłączeniowe Connecting cables Соединительные кабели Cables de conexión	100	352-145
Handgriffe ohne Schalter Uchwyt bez włącznika Handles without switch Держатели электродов с активацией через ножной переключатель Mango sin pulsador	200	330-030 335-030	ErgoLAP Instrumente Instrumenty ErgoLAP ErgoLAP Instruments ErgoLAP Инструменты ErgoLAP Instrumentos	200	736-005 750-033
Elektroden Elektrody Electrodes Электроды Electrodos	75	530-207 500-000 510-108	ErgoLAP Mauleinsätze Wkłady szczękowe ErgoLAP ErgoLAP Jaw inserts ErgoLAP Вставки ErgoLAP insertos (pinzas)	75	721-301 751-033
Elektroden mit isoliertem Schaft Elektrody z izolowanym trzonkiem Electrodes with insulated shaft Электроды с изолированным стержнем Electrodos con asta aislada	75	530-134 520-028	LAP Elektroden Elektrody LAP LAP Electrodes ЛАП. Электроды LAP Electrodos	75	700-003 700-005
Anschlusskabel Kable przyłączeniowe Connecting cables Соединительные кабели Cables de conexión	300	360-050 351-040	Monopolare Pinzetten Szczypce monopolarne Monopolar forceps Пинцеты монополярные Pinzas monopolares	75	610-017 610-025

Produktbeschreibung Opis produktu Product Description Описание продукции Descripción	Autoklavierzyklen Ilość cykli sterylizacji Autoclaving cycles Циклы автоклавирования Ciclos en autoclave	Beispiel Przykład Example Пример Ejemplo	Produktbeschreibung Opis produktu Product Description Описание продукции Descripción	Autoklavierzyklen Ilość cykli sterylizacji Autoclaving cycles Циклы автоклавирования Ciclos en autoclave	Beispiel Przykład Example Пример Ejemplo
Bipolare Pinzetten Szczypce bipolarne Bipolar forceps Пинцеты биполярные Pinzas bipolares	75	605-040 607-040	Argon-Handgriff Uchwyt argonowy Electrode handle for Argon-enhanced electrosurgery Аргоноплазменный держатель электродов Mango para argón	100	932-042
BIZZER® Bipolare Schere Nożyczki bipolarne Bipolar scissors Биполярные ножницы Tijeras bipolares	25	797-180 797-580	Starre Argonsonden Szttywne elektrody argonowe Rigid Argon probes Аргоноплазменные зонды Electrodos rígidos para argón	75	932-031
NightKNIFE® / LIGATOR® Handgriff Uchwyt Handle Рукоятка Mango	100	770-000	Flexible Argonsonden Elastyczne sondy argonowe Flexible Argon probes Гибкие аргоноплазменные зонды Sondas de argón flexibles	20	932-149
NightKNIFE® / LIGATOR® Schaftrrohr tuba Shaft tube Стержневая трубка Tubo	200	770-236 770-336	Argon-Koagulationselektrode, biegsam Elektroda argonowa do koagulacji, giętka Argon coagulation electrode, bendable Электроды для аргоноплазменной коагуляции, изгибаемый Electrodo de coagulación con argón, flexible	25	932-060 932-061 932-062
NightKNIFE® / LIGATOR® Mauleinsätze Wkłady szczękowe Jaw inserts Рабочие вставки Insertos (pinzas)	20	771-036	Anschlusskabel für flexible Argonsonden Kabel do elastycznych sond argonowych Connecting cable for flexible Argon probes Соединительный кабель для гибких аргоноплазменных зондов Cable de conexión para sondas de argón flexibles	100	932-146
TissueSeal® PLUS TissueSeal® PLUS COMFORT MetraLOOP® MetraLOOP® COMFORT	50	520-113 760-223	Gummi-Neutralelektroden Gumowe elektrody neutralne Rubber return patient plates Нейтральные электроды многоразовые Electrodos neutros reutilizables	75	242-003 232-003
TissueSeal® PLUS	50	760-223	Adapter Adaptery Adaptors Адаптеры Adaptadores	75	111-001 340-000

Kurzübersicht Indeks Index Поисковый указатель кодов Indice
















050-230	43	378-145	35/103	530-150	19	610-017	95/204	770-000	116/186/205	818-092	138	902-909	166/171/197
050-240	4	378-245	35/103	530-207	15/20/188	610-018	95	770-036	118	818-112	138	902-911	165/166/167
050-241	4	380-050	144/183/188		/189/190/192	610-019	95	770-200	116	818-141	141		/168/169/170
050-242	4		/189/190/192		/198/200/202	610-021	95	770-201	116	818-161	140		/173
100-016	11/179		/194/196/197		/203/204	610-025	95	770-211	118/187	818-162	140	902-912	165/167/169
101-000	35		/198/199/200	530-211	16/20/200	612-018	97	770-236	118/187/205	830-050	133/190/195		/170/171/190
101-003	145		/202/203		/202	612-021	97	770-300	116		/197/201		/194
101-040	35/65/93	385-050	146/185	530-224	21	612-025	97/204	770-301	116	900-000	152/156/190	902-913	165/167/168
101-045	35/204	386-050	144/185	530-225	21	612-118	97	770-320	117/186		/197		/172/173/190
101-051	34/95	401-051	35	605-001	88/91	612-121	97	770-336	117/186/205	900-001	151/156/190		/194/197
101-060	29/49/53	401-052	35	605-002	89/92/188/	612-125	97	770-502	108/109		/194/197/200	902-914	166/172/173
101-140	38/93	405-045	34		192/194	700-003	51/204	770-503	108/109/189	900-030	158		
101-145	56	431-045	34/197	605-007	88/91	700-004	51/189		/193/204	900-031	158	902-915	173
101-150	144	432-045	34/197	605-011	88/90	700-005	51/189/193	770-510	108	900-035	158	902-917	165/166/167
101-245	60	480-145	56	605-013	88/91		/204	770-522	108	900-100	154		/168/169/172
104-045	11/179	500-000	20/183/204	605-014	88/91	700-006	51	770-523	108	900-250	152/197		/173/194
105-045	11/179	500-007	15/20	605-018	89/92	700-099	53	770-532	108	900-303	152/188/189	902-918	173
106-045	34	500-008	15/20	605-019	88/90	710-003	52	770-533	108		/190/192/196		/173
106-145	37	500-009	15/20	605-020	88/90	710-004	52	770-542	108		/198/199/203	902-920	167/168/171
106-245	37	500-011	16/20	605-021	88/91	710-005	52	770-543	108	900-351	150/151	902-921	165/166/167
106-345	37	500-014	18/20	605-023	88/91	710-006	52	770-552	109	900-391	151		/168/169/170
110-045	10/179	500-015	18/20	605-024	89/91	720-000	54	770-553	109	900-392	153/190/197		/171
111-000	40	500-016	18	605-027	88/90	721-301	54	770-998	108	900-395	151/192/194	902-922	173
111-001	40/205	500-017	18/20	605-029	88/90	721-302	54	770-999	117/187		/196	902-923	168/169/173
112-045	10/179	500-018	18/20	605-030	88/90	721-303	54/204	771-011	118/187	900-396	151/188/189	902-924	168/169/171
120-045	11/179	500-019	17	605-031	89/92	721-304	55	771-036	118/187/205		/190/192/194	905-000	69
120-145	11/179	500-020	17	605-033	89/92	721-306	55	771-120	117/186		/200	905-001	68/69
131-045	34	500-021	17/20	605-034	89/92/188/	721-307	55	771-121	117/186	900-397	153	905-002	68/69
131-145	37	500-022	17/20		/190	721-308	55	771-136	117/186	900-398	153	905-003	68/69
132-045	34	500-023	18/20	605-036	88/91	721-309	55	771-137	117/186	900-399	151	905-004	68/69
193-008	145	500-024	18	605-039	88/90	721-310	55	772-011	118/187	900-400	150/188/189	905-005	68/69
193-016	145	500-112	16	605-040	88/90/183	722-530	54	772-036	118/187		/190/192/194	905-006	69/70
194-075	147/185	500-113	16		/185/188/189	723-000	57/61/109	773-000	186/187		/196/197/198	905-007	69/70
210-030	11/179	500-124	16		/190/192/194		/118	773-001	186/187		/199/200/202	905-008	71
214-045	11/179	500-125	15		/196/198/199	723-020	57/118	773-980	186	900-401	151	905-009	71
215-045	11/179/183	500-126	15/20		/205	723-050	109	773-981	186	900-402	151	905-010	71
	/204	500-127	15	605-041	88/90	723-051	109	773-982	109	900-450	153	905-011	71
215-145	11/204	500-129	17	605-057	88/90	723-052	109	773-983	109	900-451	153	905-012	69
218-045	11/179/183	500-130	17	605-058	89/91	736-005	54/204	775-000	113/189/193	900-806	161	905-013	71
218-145	11/204	500-131	17	605-059	89/92	741-100	63		/195	900-807	161	905-014	71
219-030	11/179	500-150	19	605-063	89/92	741-101	63	795-145	103	900-808	161	905-015	69
220-045	11/179/185	510-108	29/204	605-070	88/90	741-234	63	795-180	103	900-809	161	905-020	69
	/188/189/190	510-109	29	605-080	88/90	741-812	63	795-545	103	900-901	159	905-112	69
	/192/194/198	510-110	29	607-001	76/78	741-814	63	795-580	103	900-902	159	905-115	69
	/199/200/202	510-112	29	607-002	76/78/202	741-822	63	796-170	103	900-903	159	905-120	69
	/203	520-027	21		/203	741-823	63	796-570	103	900-904	159	905-212	69
220-145	11/179/204	520-028	21/204	607-007	76/78	741-827	63	797-180	102/205	900-906	160	905-215	69
220-245	11/179	520-029	22	607-014	76/78/202	741-828	63	797-230	102/188/193	900-907	160	905-220	69
220-345	154/185	520-030	22		/203	741-832	63	797-280	102	900-908	160	905-312	70
222-000	40	520-031	22	607-020	76/77/202	741-833	63	797-580	102/205	900-909	160	905-315	70
227-045	10/179	520-032	22		/203	741-842	63	797-630	102	900-911	157	905-412	70
232-003	146/185/205	520-035	22	607-021	76/78	741-843	63	797-680	102	900-912	157	905-415	70
242-003	146/205	520-110	48	607-027	76/77/202	742-106	63	798-145	102	900-913	157	905-421	71
270-145	56	520-113	48/205		/203	742-234	63	798-180	102/201	900-914	157	905-422	71
280-031	34	520-114	48	607-029	76/77	742-310	63	798-230	102/195	900-915	157	905-423	71
280-035	29/49/53/189	520-115	48/193	607-030	76/77	742-320	63	798-280	102	900-916	157	905-424	71
	/193	520-116	48	607-039	76/77/202	742-330	63	798-545	102	900-917	157	905-512	71
280-050	34/95/189	520-117	49		/203	742-340	63	798-580	102	900-921	160	905-612	69
285-050	34	520-118	49	607-040	76/77/205	742-350	63	798-630	102	900-922	159	905-615	69
287-040	35/65/93/185	520-122	21	607-080	76/77	742-816	63	798-680	102	900-923	160	905-620	69
287-045	35	520-123	21	607-100	79/80	742-826	63	800-000	27	900-924	159	932-031	129/191/195
287-050	35	520-124	21	607-101	79/80	742-829	63	800-001	25	901-011	155/188/189		/205
287-245	60	520-132	23	607-102	79/80	742-836	63	800-002	25		/190/192/194	932-032	129/191/201
294-050	144	520-133	23	607-103	79/80	742-846	63	800-003	25		/198/202	932-034	129/191/195
295-050	146	520-134	23	607-105	79/81	744-100	64	800-004	25	901-012	155/185		/201
322-045	10/179	520-135	23	607-106	79/81	744-101	64	800-005	25	901-021	155/188/189	932-035	128
327-045	10/179	520-136	23	607-107	79/81	744-220	64	800-006	27		/196/197	932-036	128/191
330-030	11/179/204	530-000	20/183/185	607-108	79/81	744-229	64	800-007	26	901-022	155	932-042	127/191/195
331-045	34		/188/189/192	607-110	79/81	744-312	64	800-011	26	901-031	155/189/190		/201/205
332-045	34		/194/199	607-111	79/81	744-313	64	800-021	26		/192/194/198	932-055	128
333-001	40/183	530-008	15/20	607-112	79/81	744-342	64	800-028	26		/199/203	932-058	128/191
335-030	11/179/204	530-009	15/20	607-113	79/81	744-343	64	800-030	26	901-032	155/188/190	932-059	128/191
340-000	40/205	530-012	16	607-115	79/81	744-812	64	801-030	12/179		/192/196/197	932-060	129/205
350-245	60	530-013	16	607-116	79/81	744-813	64	802-030	12/179		/198/199/200	932-061	129/191/205
351-040	35/65/93/183	530-014	18	607-120	79/82	744-815	64	802-032	13/178		/202	932-062	129/205
	/188/189/190	530-015	18/20	607-121	79/82	744-816	64	802-033	13/178	901-051	156	932-146	133/197/205
	/192/194/196	530-016	18	607-122	79/82	744-844	64	802-035	12	901-052	156	932-148	132
	/198/199/202	530-017	18/20	607-123	79/82	744-845	64	815-040	143	901-124	183	932-149	132/205
	/203/204	530-020	17/20	607-130	79/80	744-847	64	815-070	142	901-126	185	932-150	132
351-045	35	530-021	17/20	607-140	83/86	744-848	64	815-110	139	901-140	183	932-151	132
351-051	35	530-022	17/20	607-141	83/86	745-100	65	815-140	141	901-210	41	932-152	132
351-245	60	530-027	21	607-145	83/86	745-120	65	816-042	143				

SimCOAG	<p>Simultane Aktivierung von 2 monopolen Handgriffen Jednoczesna aktywacja 2 uchwytów monopolarnych Simultaneous activation of two monopolar handles Одновременная активация двух монополярных держателей электродов Activación simultánea con dos mangos monopolares</p>	EASY (Elektrode application system)	<p>Neutralelektroden-Überwachungssystem System monitoringu elektrody neutralnej Return plate monitoring system Система мониторинга нейтрального электрода Sistema de monitoreo del electrodo neutro</p>
Plug'n CUT COMFORT	<p>Automatische Instrumentenidentifikation Automatyczna identyfikacja instrumentów Automatic instrument identification Автоматическая идентификация инструмента Identificación automática del instrumento</p>	Plug'n Cut	<p>Gesteckterkennung für Standardinstrumente Detekcja podłączenia standardowych instrumentów Plug-in detection for standard instruments Определение присоединённых стандартных инструментов Reconocimiento de la conexión de instrumentos estándar</p>
ISSys (Integrated safety system)	<p>Integriertes Sicherheitssystem Zintegrowany system bezpieczeństwa Integrated safety system Интегрированная система безопасности Sistema integrado de seguridad</p>	AUTOSTART	<p>Bipolare Pinzettenkoagulation ohne Fußschalter Koagulacja szczypcami bipolarnymi bez włącznika nożnego Bipolar forceps coagulation without footswitch Коагуляция биполярными пинцетами без педали Coagulación con pinzas bipolares, sin pedal</p>
GastroCut	<p>Spezialstromarten für die Gastroenterologie Specjalne typy prądów dla gastroenterologii Special types of current for gastroenterology Специальные виды токов для гастроэнтерологии Tipos de corriente especiales para la gastroenterología</p>	MICRO	<p>Begrenzte Regelung für feine Elektroden Limitowana regulacja mocy dla cienkich elektrod Limited power regulation for fine electrodes Ограничение токов для прецизионных электродов Regulación limitada para electrodos finos</p>
ARC CONTROL	<p>Lichtbogenregelung für reproduzierbare Ergebnisse Kontrola łuku w celu osiągnięcia powtarzalnych efektów Arc control for reproducible results Контроль дуги для возобновляемых результатов Regulación del arco para obtener resultados reproducibles</p>	Bipolare Resektion	<p>Spezialstromart für bipolare Resektoskope Specjalny typ prądu dla resectoskopów bipolarnych Special type of current for bipolar resectoscope Специальные виды токов для биполярных резектоскопов Corriente especial para resectoscopios bipolares</p>
LIGATION	<p>Bipolare Gewebe- und Gefäßversiegelung Bipolarne zamykanie naczyń i tkanek Bipolar tissue and vessel sealing Биполярное лигирование тканей и сосудов Sellado de vasos y tejidos bipolar</p>	MetraLOOP®	<p>Spezialstromart für MetraLOOP® Specjalny typ prądu dla pełii MetraLOOP® Special type of current for MetraLOOP® Специальный тип тока для MetraLOOP® Corriente especial para MetraLOOP®</p>

V_p / V_n

Maximal zulässige Spannung
Maksymalne dopuszczalne napięcie
Maximum permitted voltage
Максимально допустимое напряжение
Máxima tensión admisible

Symbole
Symbole
Symbols
СИМВОЛЫ
Símbolos

 Allgemein Chirurgie Chirurgia ogólna General Surgery Общая хирургия Cirugía general	 Herzchirurgie Kardiochirurgia Cardiac Surgery Кардиохирургия Cirugía cardiovascular	 Kinderchirurgie Chirurgia dziecięca Pediatric Surgery Детская хирургия Cirugía pediátrica	 Orthopädie und Unfallchirurgie Ortopedia i chirurgia urazowa Orthopedics and Traumatology Травматология и ортопедия Ortopedia y cirugía traumatológica	 Plastische und Ästhetische Chirurgie Chirurgia plastyczna i estetyczna Plastic and Aesthetic Surgery Пластическая и эстетическая хирургия Cirugía estética y plástica
 Thoraxchirurgie Torakochirurgia Thoracic Surgery Торакальная хирургия Cirugía torácica	 Viszeralchirurgie Chirurgia wisceralna Visceral Surgery Висцеральная хирургия Cirugía visceral	 Gynäkologie Ginekologia Gynaecology Гинекология Ginecología	 HNO Otolaryngologia ENT Оториноларингология Otorrinolaringología	 Neurochirurgie Neurochirurgia Neuro Surgery Нейрохирургия Neurocirugía
 Dermatologie Dermatologia Dermatology Дерматология Dermatología	 Mund-Kiefer-Gesichts- chirurgie Chirurgia twarzowo-szczękowa Oral and maxillofacial Surgery Стоматология и челюстно-лицевая хирургия Cirugía oral y maxilofacial	 Urologie Urologia Urology Урология Urología	 Gastroenterologie Gastroenterologia Gastroenterology Гастроэнтерология Gastroenterología	 Pulmologie Pulmonologia Pneumology Пульмонология Neumología

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OPERATING MANUAL
ELECTROSURGICAL UNIT



BOWA
4000

Contents

1.	Using this operating manual	9
1.1.	Revision index.....	9
1.2.	Validity.....	9
1.3.	Other applicable documents	9
1.4.	Icons and labeling	9
1.4.1.	Structure of warning instructions	9
1.4.2.	Risk levels in warning instructions.....	10
1.4.3.	Tips	10
1.4.4.	Other symbols and marks.....	10
2.	Safety.....	11
2.1.	Intended use	11
2.2.	General safety instructions	12
2.3.	Personal safety instructions	13
2.3.1.	Ambient conditions	13
2.3.2.	Patients with pacemakers.....	13
2.3.3.	Hazard-free patient positioning	14
2.3.4.	Correct connection of the HF device	14
2.3.5.	Correct use of the HF device.....	14
2.3.6.	Configuring HF device settings and using accessories.....	15
2.4.	Product-related safety instructions	16
2.5.	Safe handling (general instructions)	16
2.5.1.	Operation area: avoiding ignition and explosions.....	17
2.5.2.	Applying the neutral electrode	17
3.	Description.....	20
3.1.	User interface components	20
3.1.1.	Front panel user interface components	20
3.1.2.	Monopolar connector module (left).....	20
3.1.3.	Bipolar connector module (right)	21
3.1.4.	Rear panel user interface components	22
3.2.	Symbols used on the device	23
3.2.1.	Nameplate	24
3.3.	Scope of delivery	24
3.4.	Components required for operation	25
3.4.1.	OR1 Storz.....	25

3.4.2.	MAQUET TEGRIS:.....	27
3.5.	Operating conditions	28
3.6.	The basis of modern HF surgery	29
4.	Prearrangement.....	30
4.1.	Setting up the HF device.....	30
4.2.	Switching on the HF device	31
4.3.	Connecting instruments	32
4.3.1.	Instruments for monopolar use.....	33
4.3.2.	Instruments for bipolar applications.....	33
4.3.3.	Connecting a foot switch	33
4.4.	Functional test.....	34
4.4.1.	Auto test function.....	34
4.4.2.	Functional testing	34
4.4.3.	Actions in case of problems.....	35
4.5.	Neutral electrode monitoring.....	35
4.5.1.	General information	35
4.5.2.	EASY neutral electrode monitoring (EASY monitoring).....	36
4.6.	Turning the device off	37
5.	Operation.....	38
5.1.	Program overview	38
5.1.1.	Display	38
5.1.2.	Status bar	38
5.2.	Activating and deactivating connectors	39
5.3.	Unlocking the screen	40
5.4.	Configuring output currents.....	41
5.4.1.	Selecting the mode.....	41
5.4.2.	Specifying power limits	42
5.4.3.	Selecting the effect	43
5.4.4.	Assigning the foot pedal	44
5.4.5.	Selecting the neutral electrode	47
5.4.6.	Dr. Dongle®.....	49
5.4.7.	Plug'n Cut COMFORT	51
5.4.8.	Playing videos	52
5.4.9.	Configuring the startup screen	53
5.5.	Mode overview	54
5.5.1.	Monopolar modes.....	54

5.5.2.	Bipolar modes.....	56
5.6.	Monopolar cutting modes.....	58
5.6.1.	Standard.....	58
5.6.2.	Micro.....	58
5.6.3.	Dry.....	59
5.6.4.	Argon.....	59
5.6.5.	Resection.....	60
5.6.6.	MetraLOOP.....	60
5.6.7.	Laparoscopy.....	61
5.6.8.	GastroLOOP 1.....	61
5.6.9.	GastroLOOP 2.....	62
5.6.10.	GastroLOOP 3.....	62
5.6.11.	GastroKNIFE 1.....	63
5.6.12.	GastroKNIFE 2.....	63
5.6.13.	GastroKNIFE 3.....	64
5.7.	Monopolar coagulation modes.....	64
5.7.1.	Moderate.....	64
5.7.2.	Forced non cutting.....	65
5.7.3.	Forced mixed.....	65
5.7.4.	Forced cutting.....	66
5.7.5.	Spray.....	66
5.7.6.	Argon.....	67
5.7.7.	Argon flexible.....	67
5.7.8.	Argon flex. pulse.....	68
5.7.9.	Resection.....	68
5.7.10.	Cardiac Mammary.....	69
5.7.11.	Cardiac Thorax.....	69
5.7.12.	SimCoag.....	70
5.7.13.	Gastro Coag.....	70
5.7.14.	Laparoscopy.....	71
5.8.	Bipolar cutting modes.....	71
5.8.1.	Standard.....	71
5.8.2.	Bipolar resection (optional).....	72
5.8.3.	Bipolar scissors.....	72
5.8.4.	Vaporisation.....	73
5.9.	Bipolar coagulation modes.....	73
5.9.1.	Standard forceps.....	73

5.9.2.	Standard forceps AUTO	74
5.9.3.	Micro forceps	74
5.9.4.	Forceps forced.....	75
5.9.5.	LIGATION (optional).....	75
5.9.6.	TissueSeal PLUS (optional)	76
5.9.7.	Bipolar scissors	76
5.9.8.	Laparoscopy	77
5.9.9.	Laparoscopy Micro	77
5.9.10.	Bipolar resection (optional).....	78
5.9.11.	Vaporisation (optional).....	79
5.9.12.	Bipolar SimCoag (optional).....	79
5.10.	Menu dialogs.....	80
5.10.1.	Overview.....	80
5.10.2.	"System Settings" dialog	81
5.10.3.	"Volume" dialog	82
5.10.4.	"Service" dialog	83
5.10.5.	"System information" dialog.....	85
5.10.6.	"Select program" dialog	85
5.10.7.	"Favourites" dialog.....	87
5.10.8.	"Save Program" dialog	87
5.10.9.	Socket extension	88
5.10.10.	ZAP Mode.....	89
5.10.11.	"System messages" dialog.....	92
5.10.12.	"Argon" dialog	93
5.11.	Basic programs	94
6.	Detecting and correcting faults	100
6.1.	System information	100
6.2.	Fault indications for EASY monitoring	106
7.	Preparation.....	107
7.1.	Preparation of the accessories	107
7.2.	Disinfection and cleaning	107
8.	Maintenance and repair	108
8.1.	Maintenance	108
8.1.1.	Safety inspection	108
8.2.	Repairs.....	109
9.	Storage	110
9.1.	Technical service	110

10. Technical specifications	111
10.1. ARC 400 technical data (REF 900-400)	111
10.2. Output, voltage and current diagrams	121
11. Accessories and replacement parts	159
12. EMC	160
12.1. Guidelines and manufacturer's declaration in accordance with IEC 60601-1-2:2007	160
13. Disposal	164

1. Using this operating manual

This operating manual is part of the device.

BOWA-electronic GmbH & Co. KG, referred to in the following simply as BOWA, assume no liability nor provide any warranty whatsoever for damage and consequential damages that arise due to non-compliance with the operating manual.

Read the operating manual carefully and thoroughly before using this device.

Store the operating manual in a safe place throughout the service life of the device.

Keep the operating manual accessible to operating room personnel.

Give the operating manual to each successive owner and/or user of this device.

Always update the operating manual whenever you receive additional information from the manufacturer.

1.1. Revision index

Unit version	Last revised
Valid from version 2.1.0	2016/05

1.2. Validity

This operating manual applies only to the devices designated in chapter 3.2.1 Nameplate (see page 24).

1.3. Other applicable documents

Comply with other applicable documents in the appendix or in the other sections.

1.4. Icons and labeling

1.4.1. Structure of warning instructions



SIGNAL WORD

"Risk type, source and consequences there of" (Personal injury)!

▶ Measure for risk prevention.







NOTE

"Risk type, source and consequences there of" (Property damage)!

▶ Measure.

1.4.2. Risk levels in warning instructions







Symbol	Risk level	Probability of occurrence	Consequences of non-compliance
	DANGER	Immediate risk	Death, serious injuries
	WARNING	Possible risk	Death, serious injuries
	CAUTION	Possible risk	Minor injuries
	NOTE	Possible risk	Property damage

1.4.3. Tips



Tips and additional information to facilitate tasks

1.4.4. Other symbols and marks

Symbol or mark	Meaning
	Prerequisite for an activity
	Activity with one step
	Activity with several steps in a binding sequence
	Result of preceding activity
	List (first level)
	List (second level)
Emphasis	Emphasis
....., see Section xxx, page xxx	Cross reference

2. Safety

2.1. Intended use

The HF device is intended exclusively for the generation of electrical power for monopolar and bipolar cutting and coagulation on tissue structures in surgical operations.

It is used in the following areas:

- General surgery
- Endoscopy (GastroCut mode)
- Gynecology
- Hand surgery
- ENT
- Cardiac surgery (including open-heart surgery)
- Neurosurgery
- Pediatric surgery
- Plastic surgery and dermatology
- Thoracic surgery
- Orthopedics
- Urology, including transurethral resection (TUR)

Do not use the HF device if, in the opinion of an experienced physician or according to current professional literature, such use would endanger the patient, due for example to the general condition of the patient, or if other contraindications are present.



BOWA requires that the HF device is operated under the supervision of qualified and authorized personnel. The surgeon and medical staff must be trained in the fundamental principles, rules for use and risks of HF surgery and must be familiar with these in order to safely and reliably prevent putting patients, staff and equipment at risk. Contact your BOWA distributor for trainings and training material.



Any other use is neither intended nor proper and must be effectively prevented.



When setting up the HF device, ensure easy access to the power cable so it can be disconnected from the device.
(IEC 60601-1:2012, Section 7.9.2.7)

2.2. General safety instructions

- ▶ Ensure that no electronic devices that are subject to interference from electromagnetic fields are set up in the vicinity of the HF device.
- ▶ Observe the instructions on electromagnetic compatibility provided in section EMC, page 159.
- ▶ Always connect the HF device to a mains power system with a protective earth lead in order to prevent electric shock.

Additional devices that are connected to electrical medical devices must satisfy relevant IEC or ISO standards (e.g. IEC 60950 for data processing devices). Furthermore, all configurations must comply with the standardised requirements for medical systems (see IEC 60601-1-1 or Section 16 of the 3rd edition of IEC 60601-1 as relevant). Anyone who connects additional devices to electrical medical devices is automatically a system configurator and thus responsible for meeting standardised system requirements. Please note that local laws prevail over the aforementioned standard requirements. In case of questions, please contact your local dealer or Technical Service, see section Technical service, page 109.

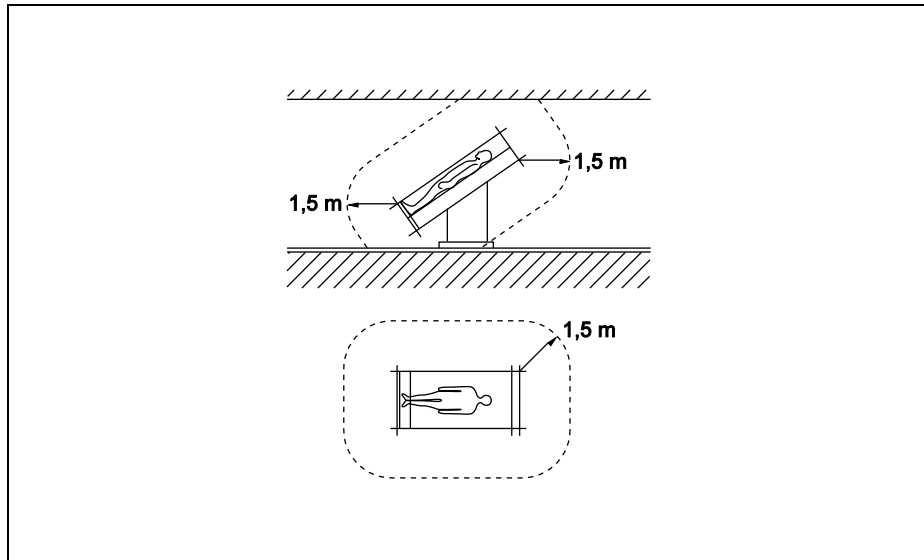


To protect personnel, BOWA recommends the use of a smoke evacuator to extract electrosurgical smoke, e.g. BOWA SHE SHA. (IEC 60601-2-2:2009; section 201.7.9.2.15)

2.3. Personal safety instructions

2.3.1. Ambient conditions

- ▶ Do not use the HF device in the immediate vicinity of the patient. Observe the minimum distances recommended by BOWA, as shown in the following figure.



2.3.2. Patients with pacemakers

Malfunction or destruction of the pacemaker can endanger the life of the patient or result in irreversible injuries to the patient.

- ▶ In the case of patients with pacemakers, consult the cardiologist before carrying out HF surgery.
- ▶ Use bipolar HF methods.
- ▶ Attach the HF neutral electrode close to the operating field.
- ▶ Set the demand pacemaker to a fixed frequency.
- ▶ Ensure that the pacemaker does not come into contact with the HF electrode.
- ▶ Keep a fully operational defibrillator within reach.
- ▶ Carry out a postoperative pacemaker check.

2.3.3. Hazard-free patient positioning

- ▶ Position patients so that they are not touching any metal parts that are grounded or have considerable capacitance relative to ground (e.g. operating table brackets). If necessary, place anti-static cloths between the patient and the bedding.
- ▶ Ensure that the patient does not touch any wet clothes or bedding.
- ▶ Place anti-static cloths between areas with heavy sweating and skin-to-skin contact areas on the patient's torso.
- ▶ Ensure that the patient is resting on a suitable surface in order to prevent pressure necrosis.
- ▶ Drain urine via a catheter.

2.3.4. Correct connection of the HF device

- ▶ Always ground the HF device to the equipotential rail. Also observe the requirements in Section 8.6.7 of IEC 60601-1 regarding medical electrical systems.
- ▶ Do not use needle electrodes for monitoring.
- ▶ Attach electrodes of physiological monitoring devices without protective resistors or HF chokes as far away from the HF electrodes as possible.
- ▶ In all cases, monitoring systems containing devices to limit the high-frequency current are recommended.
- ▶ Place lines from monitoring devices so that they do not lie on the patient's skin.
- ▶ Keep the leads to the HF electrodes as short as possible and position them so that they do not touch the patient or other leads.
- ▶ Do not place any objects on the HF device.

2.3.5. Correct use of the HF device

Inadvertent activation of the HF device outside the user's field of vision can injure the patient.

- ▶ Activate the HF device only when the electrode is in your field of vision and you can quickly deactivate the HF device at all times.
- ▶ If the HF device is activated inadvertently, switch it off immediately using the on/off switch.
- ▶ Take particular care when using a foot switch or manual switch.

Improper preparation, user errors or faults in the HF device can cause damage to the HF device.

- ▶ Use the automatic monitoring functions to ensure that the HF device is working properly. See Section Functional testing, page 33 for information on the auto test functions.
- ▶ Ensure that no conductive fluids (e.g. blood or amniotic fluid) have penetrated the foot switch or the manual switch.
- ▶ Ensure that the cables for the foot switch and the manual switch are free from short circuits and broken leads.

For patient protection, avoid touching the patient and any of the following parts at the same time:

- ▶ exposed contacts of plug-and-socket connectors;
- ▶ contacts of fuse holders that are accessible during fuse replacement;
- ▶ contacts of lamp sockets that are accessible when the lamp is removed;
- ▶ parts inside an access cover,
 - which can be opened without using tools or
 - where a tool is necessary but the use instructions instruct any operator who is not a member of maintenance staff to open the cover concerned.

2.3.6. Configuring HF device settings and using accessories

“An obviously low output value or functional failure of the HF surgical device in normal operation may be caused by insufficient skin contact of the neutral electrode or insufficient contact with its connecting cables.”

Therefore, before you increase the output power, ensure that:

- the neutral electrode is attached properly;
- the working electrodes are clean;
- the plug connections are all correct.

Setting the HF device correctly

- ▶ To prevent inadvertent (thermal) tissue damage during operations on body parts with small cross sections and in areas with high resistance (bones or joints), use the bipolar method in these areas.
- ▶ Set the level of the acoustic signal that sounds when the electrode is activated so that it is always clearly audible.

Risk of nerve or muscle excitation by low-frequency currents!

During HF surgical operations (especially when an arc is formed), part of the HF current is converted into a low-frequency current. This current can trigger muscle contractions in the patient.

- ▶ To minimize the risk of injury to the patient, set the power and the effect as low as possible.

Correct use of accessories

- ▶ Use only insulated accessories.
- ▶ Check all electrodes for sharp edges and projecting parts before use.
- ▶ Use only electrodes that are free of defects and in good working order.
- ▶ Never place active electrodes on or near the patient.
- ▶ Do not remove hot electrodes from the patient's body directly after cutting or coagulation.
- ▶ Ensure that there is sufficient distance between the patient cables and the cables of the HF device.
- ▶ Do not run the patient cable across the patient.

2.4. Product-related safety instructions

Devices manufactured by BOWA are developed in accordance with the current state of technology and generally accepted safety rules. Despite this, using these products can lead to risks to the life and health of the user or third parties and/or damage to the device or other objects.

- ▶ Use only accessories approved by BOWA, see Accessories and replacement parts, page 158.
- ▶ Use the device only when it is free of technical defects and in good working order and only for the intended purpose, always remaining aware of safety requirements and risks and complying with this operating manual.
- ▶ Have malfunctions that can adversely affect safety (e.g. deviations from the permissible operating conditions) repaired without delay.
- ▶ Wipe down the HF device only with cleaning agents and disinfectants that are approved in the country of use for surface cleaning. See Section Disinfection and cleaning, page 106.
- ▶ Never immerse the device in water or cleaning agents.
- ▶ Never boil the device and never disinfect it mechanically.
- ▶ If any fluids penetrate the device, drain them immediately.

Damage to the device can lead to an undesirable increase in output power due to improper operation of the device.

Certain units or accessories can cause danger in lower power settings. For example, the risk of gas embolism in argon assisted coagulation rises, if the hf-power is insufficient for the fast creation of an impenetrable eschar layer on the target tissue.

2.5. Safe handling (general instructions)

- ▶ Before each use of the device, check to ensure that it is functioning properly and is in good working order and connected properly.
- ▶ Observe the instructions on intended use in conformance with standards (see Section Fault indications for EASY monitoring , page 105).
- ▶ During use, always observe and comply with the acoustic signals and/or error messages of the HF device (see Section Fault indications for EASY monitoring , page 105).
- ▶ The device and accessories may be operated and used only by people who have the necessary training, knowledge and experience.
- ▶ Regularly inspect the accessories, especially the electrode cables, endoscopic accessories and neutral electrodes, for damage to the insulation, proper operation and expiration date.
- ▶ Instruments must not be laid upon the patient or devices.
- ▶ Ensure that no instruments are being cleaned when AUTOSTART is activated.
- ▶ Wear suitable gloves during operations.

2.5.1. Operation area: avoiding ignition and explosions

Sparks are generated when the HF device is used as intended.

- ▶ Do not use the HF device in areas where there is a risk of explosion.
- ▶ Do not use any flammable or explosive liquids.
- ▶ If the display fails, do not use the HF device any longer.
- ▶ During operations (e.g. in the head or thoracic regions), avoid using ignitable anaesthetics and gases that support combustion (e.g. nitrous oxide or oxygen) or extract them using a vacuum system.
- ▶ Use exclusively non-flammable cleaning agents, disinfectants and solvents (for adhesives). If you use flammable cleaning agents, disinfectants or solvents, ensure that they have fully evaporated before using HF surgical equipment.
- ▶ Ensure that no flammable liquids collect beneath the patient or in body cavities (e.g. the vagina). Suction and/or flush body cavities before activating the device.
- ▶ Wipe off all liquids before using the HF device.
- ▶ Ensure that no ignitable endogenous gases are present.
- ▶ Ensure that all materials saturated with oxygen (e.g. cotton or gauze) are kept far enough away from the HF environment that they cannot ignite.

2.5.2. Applying the neutral electrode



Observe the instructions on the use of the neutral electrode in the user guide and the information on the package of the neutral electrode.

In the monopolar HF method, the neutral electrode feeds the current introduced into the patient's body at the surgical site back to the HF device.

- ▶ To prevent a rise in temperature at the current exit point, the following conditions must be ensured:
 - sufficiently large contact surface between the neutral electrode and the patient's body;
 - high electrical conductivity between the neutral electrode and the patient's body.

- ▶ To prevent the patient being burned by the neutral electrode, you must comply with the following conditions:
 - Select the application point for the neutral electrode so that the current paths between the active and neutral electrodes are as short as possible and run longitudinally or diagonally through the patient's body (because muscles are more conductive in the direction of the fibrils).

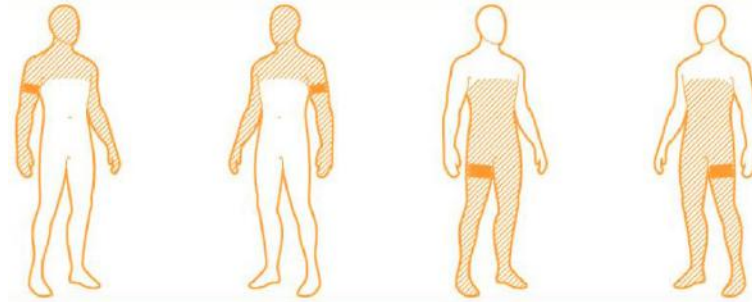


Figure 2-1: Application point of neutral electrode

- For surgery in the thoracic region, do not run the current path transversely across the patient's body and ensure that the patient's heart is never in the current path.
- Depending on the surgical site, apply the neutral electrode to the nearest upper arm or thigh if possible, but never closer than 20 cm.
- In the case of self-adhesive disposable electrodes, comply with any further manufacturer instructions regarding the point of application.
- Ensure that the application area is free of scar tissue, bony protuberances, surface hair and ECG electrodes.
- Ensure that there are no implants (e.g. bone nails, bone plates or endoprostheses) in the current path.
- Ensure that no short circuits can occur at the neutral electrode connection.
- Avoid areas where fluids may collect.
- Use split neutral electrodes with a sufficiently large surface area (patient age and max. output power during operation have to be considered).

Before applying the neutral electrode

- ▶ Shave the area where the neutral electrode will be applied.
- ▶ Clean the application site, but do not use any alcohol, since it dries out the skin and increases the contact resistance.
- ▶ If the patient has poor circulation, massage or brush the application site.

- ▶ Attach the neutral electrode over the entire contact surface evenly. Secure reusable neutral electrodes with rubber bands or elastic straps so that they do not loosen when the patient moves. Ensure that the patient's circulation is not impaired (risk of necrosis).
- ▶ Never use wet clothes or conductive pastes.
- ▶ Ensure that no liquids (e.g. cleaning fluids, disinfectants, blood or urine) penetrate between the patient and the neutral electrode.
- ▶ Do not place the neutral electrode under the patient's buttocks or back.
- ▶ Ensure that there are no ECG electrodes in the current path of the HF device.
- ▶ Check the neutral electrode before and after use for damage and to ensure that they are working properly.
Replace defective accessories immediately

Example application using a disposable electrode

- ▶ Remove the protective film and attach the self-adhesive disposable electrode to the patient. Ensure that the long edge of the disposable electrode faces the operation site and the electrode is fully in contact with the skin. This avoids excessive current concentration on the short edge.
- ▶ Using both hands, press the self-adhesive disposable electrode firmly against the patient's skin.
- ▶ Clamp the electrode tab to the neutral electrode cable.
- ▶ After the operation, remove the disposable electrode carefully to avoid skin damage.

With a one-piece neutral electrode

- ▶ Check the one-piece neutral electrode during surgery.
- ▶ Ensure that the one-piece electrode is not blocked at the device.

With a split neutral electrode

- ▶ Apply the split neutral electrode correctly and without any additional objects, as otherwise the HF device may detect a path between the two sections due to other objects.
- ▶ See that the current flows equally to both parts of the split neutral electrode.
- ▶ When the EASY indicator is illuminated yellow, heating at the current exit point may be present depending on the indication.



See Section EASY neutral electrode monitoring (EASY monitoring) , page 35 regarding monitoring of the neutral electrode.

3. Description

3.1. User interface components

3.1.1. Front panel user interface components



- 1 On/-Off button
- 2 "On/-Off button" icon
- 3 Neutral electrode isolated from ground for HF
- 4 Symbol "Defibrillation-proof type CF applied part"
- 5 Symbol "Observe instructions for use"
- 6 Touchscreen with mode selection buttons
- 7 Activation bar upper monopolar socket
- 8 Activation bar lower monopolar socket
- 9 Activation bar upper bipolar socket
- 10 Activation bar lower bipolar socket



While activating an instrument, the activation bar of the corresponding socket illuminates yellow or blue.

3.1.2. Monopolar connector module (left)

- 11 Socket connector for monopolar instruments with hand or foot switch*
- 12 Socket connector for monopolar instruments with hand or foot switch*
- 13 Socket connector for neutral electrode *

* Applied part type CF according to IEC 60601-1

Monopolar connection socket



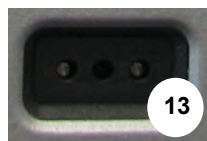
Version 1

- 14** 3-pin US type
- 15** Bovie connector (for foot switch)
- 16** 4-mm socket (for foot switch)

Version 2

- 14** 3-pin US type
- 15** Erbe 5 mm
- 16** 4-mm socket (for foot switch)

Connection socket for neutral electrode



- 13** Neutral (US type)

3.1.3. Bipolar connector module (right)

- 17** Socket connector for bipolar instruments with foot switch, finger switch or AUTOSTART*
- 18** Socket connector for bipolar instruments with foot switch, finger switch or AUTOSTART*

Bipolar connection sockets

Upper bipolar socket:



- 19** 2-pin US type (28.58 mm)
- 20** 1 x Erbe VIO/ICC

Lower bipolar socket:



- 19** 2-pin US type (28.58 mm)
- 20** 2 x Erbe VIO/ICC

* Applied part type CF according to IEC 60601-1

3.1.4. Rear panel user interface components



- 21 Foot switch socket connector 1
- 22 Foot switch socket connector 2
- 23 Equipotential bonding terminal
- 24 IEC power cord connector
- 25 Fiber-optic signal input socket connector
- 26 Fiber-optic signal output socket connector
- 27 Ethernet connector
- 31 Power switch

Use the following connections only for service and training purposes:

























- 28 USB connector
- 29 Audio In (not occupied)
- 30 UART communication interface



The USB connector can be used to perform software updates.

The maximum voltage at the SIP/SOP ports is 15 V_{DC}.

3.2. Symbols used on the device

Symbol	Designation
	Foot switch connector
	Neutral electrode isolated from ground for HF
	Defibrillation-proof type CF applied part
	Alternating current
	"ON" / "OFF" (push-push)
	During activation (of the HF device) RF energy in the radio frequency range 9 kHz to 400 GHz is applied, which produces electromagnetic radiation.
	Labeling of electrical and electronic devices in accordance with Directive 2002/96/EC (WEEE); see "Disposal"
	(Active) HF output; caution: hazardous voltage
	Caution!
	Caution: Federal Law restricts this device to sale by or on the order of a licensed practitioner. Only for the attending physician.
	Manufacturer
	Date of manufacture
	Observe use instructions
	Equipotentiality
	Fiber-optic signal input
	Fiber-optic signal output
	Ethernet connector
	USB connector
	Audio In
	UART communication interface
	Catalogue number
	Serial number
	CE-marking with number of notified body Product conforms with the essential requirements in the European Medical Devices Directive 93/42/EEC.
	Protection Class

3.2.1. Nameplate

Depending on the destination country (intended sales destination) or the specific purchase order, the ARC 400 (REF 900-400) is configured for the corresponding necessary voltage range and delivered with the associated nameplate.

Mains voltage 220 – 240 V~

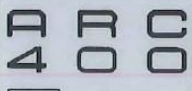



 REF 900-400 SN 4000XXXX  2016-04	NETZSPANNUNG 220-240V~ LINE VOLTAGE	MONOPOLAR 400W / 200 Ohm BIPOLAR 400W / 75 Ohm
	NETZFREQUENZ 50/60 Hz LINE FREQUENCY	FREQUENZ 350 kHz / 1 MHz FREQUENCY
NETZSTROM 5 A INPUT CURRENT	BETRIEBSART INT 10s on OPERATION MODE 30s off	
SICHERUNG 2x T 5AH 250V LINE FUSE		
SCHUTZKLASSE I / IP21 CLASS		
Rev: 05 2016/04 BOWA electronic GmbH & Co. KG, Heinrich-Hertz-Str. 4-10, 72810 Gomaringen, Germany		

Figure 3-1: Nameplate ARC 400 for 220 – 240 V~

(Here: ARC 400 incl. options LIGATION and Bipolar Resection, ARC 400 with option LIGATION bipolar output power changes to 200W, ARC 400 basic version provides a bipolar output power of 120W.)

Mains voltage 100 – 127 V~

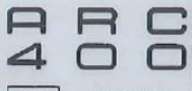



 REF 900-400 SN 4000XXXX  2016-04	NETZSPANNUNG 100-127V~ LINE VOLTAGE	MONOPOLAR 400W / 200 Ohm BIPOLAR 400W / 75 Ohm
	NETZFREQUENZ 50/60 Hz LINE FREQUENCY	FREQUENZ 350 kHz / 1 MHz FREQUENCY
NETZSTROM 10A@100V INPUT CURRENT 8A@127V	BETRIEBSART INT 10s on OPERATION MODE 30s off	
SICHERUNG 2x T 10AH 250V LINE FUSE		
SCHUTZKLASSE I / IP21 CLASS		
Rev: 05 2016/04 BOWA electronic GmbH & Co. KG, Heinrich-Hertz-Str. 4-10, 72810 Gomaringen, Germany		

Figure 3-2: Nameplate ARC 400 for 100 – 127 V~

(Here: ARC 400 incl. options LIGATION and Bipolar Resection, ARC 400 with option LIGATION bipolar output power changes to 200W, ARC 400 basic version provides a bipolar output power of 120W.)

3.3. Scope of delivery

You'll find detailed information on the scope of delivery in the current catalogues.

3.4. Components required for operation

- Power cable
- Foot switch
- Neutral electrode for monopolar applications
- Connection cable for neutral electrode or instrument
- Instrument (monopolar or bipolar)
- Dr. Dongle as an individual memory stick

3.4.1. OR1 Storz

When you couple the HF device to an OR system:

- ▶ Correct coupling of the OR system and the HF device can be checked with the “sign of life” (status icon).

The following states are signalled:

1. On the ARC 400 the connection to OR1 is enabled. There is no connection to the OR system.



2. On the ARC 400 the connection to OR1 is enabled. There is a correct connection to the OR system. The device can be adjusted from the OR system. The white bar sweeps cyclically from left to right.



3. On the ARC 400 the connection to OR1 is not enabled. In this case the sign-of-life icon (status icon) is not displayed.



The following points should be observed when integrating the ARC400 into the Karl Storz OR1 system:

- Use the BOWA network cable (ref 900-045).
- Network cable CAT 5e F/UTP or better; maximum total length 100 m
- OR1 ControlNEO Release 200900 01-46 or later
- BOWA ARC 400 Version 2.1.0 or later
- Only one BOWA ARC 400 can be connected to an OR1.
Connection of a second BOWA ARC 400 at the same time is not supported.

Use the network port of the BOWA ARC 400 and the network cable for the connection. Unlike other devices integrated into the OR1 system, there is no SCB connection.

The system operator is responsible for compliance with the applicable EMC requirements for the overall system.

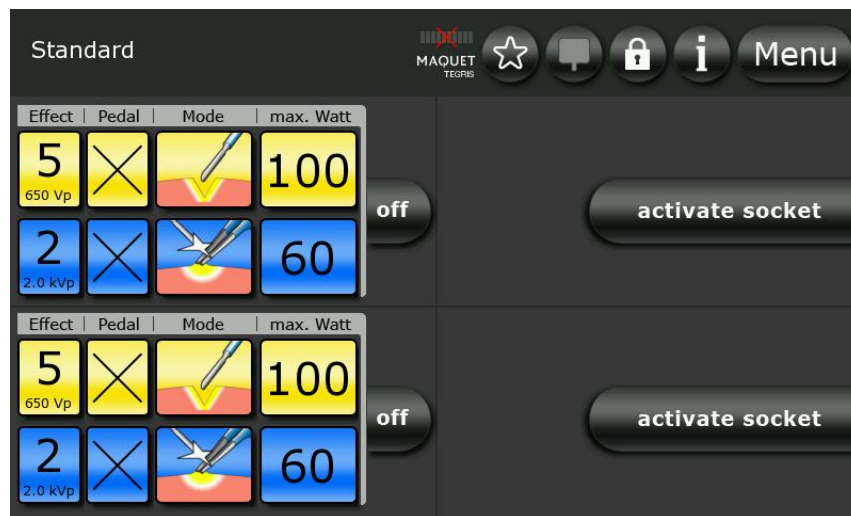
3.4.2. MAQUET TEGRIS:

When you couple the HF device to an OR system:

- ▶ Correct coupling of the OR system and the HF device can be checked with the “sign of life”(status icon).

The following states are signaled:

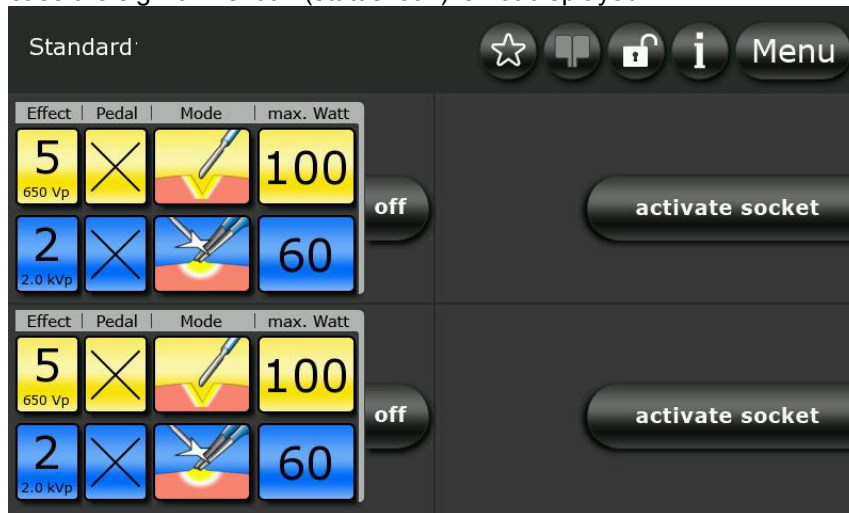
1. On the ARC 400 the connection to TEGRIS is enabled. There is no connection to the OR system.



2. On the ARC 400 the connection to TEGRIS is enabled. There is a correct connection to the OR system. The device can be adjusted from the OR system. The white bar sweeps cyclically from left to right.



3. On the ARC 400 the connection to TEGRIS is not enabled. In this case the sign-of-life icon (status icon) is not displayed.



The following points should be observed when integrating the ARC400 into the MAQUET TEGRIS system:

- Use the BOWA network cable (ref 900-045).
- Network cable CAT 5e F/UTP or better; maximum total length 100 m
- BOWA ARC 400 Version 2.1.0 or later
- To activate support for the BOWA ARC 400 by your Maquet TEGRIS system, please contact your Maquet dealer.

Use the network port 27 of the BOWA ARC 400 and the network cable for the connection.

The system operator is responsible for compliance with the applicable EMC requirements for the overall system.

3.5. Operating conditions

Temperature:	+10 °C to +40 °C
Relative humidity:	30 to 75%, non-condensing
Atmospheric pressure:	700 to 1060 hPa
Operating altitude (max.):	3000 m above sea level

3.6. The basis of modern HF surgery

Depending on its nature, value and frequency, the action of electrical current on tissue may be described as electrolytic (destructive), faradic (stimulating muscles and nerves) or thermal. HF surgery is based on alternating currents with a frequency of at least 200 kHz, with the thermal effect dominating. Its effect is primarily dependent on the time for which the tissue is exposed to the current, the current density and the specific resistance of the tissue, which on the whole falls with increasing water content or increasing blood circulation. In practice, it is also necessary to consider that portion of current which flows past the target tissue and can heat up and damage other regions (such as during irrigation, seen more with monopolar techniques than with bipolar ones).

Monopolar Method

Monopolar HF surgery deploys a closed current circuit in which current flows from the active electrode of the instrument through the patient to a neutral electrode with a large surface area and then back to the generator.

The contact area between the tip of the monopolar instrument and the tissue is small so that the highest current density of the current circuit is seen here, and brings about the desired thermal action.

Localized heat build-up is reduced to a minimum through the large surface area and the special design of the neutral electrode.

Bipolar Method

With bipolar HF surgery two active electrodes are integrated into the instrument and current flow is restricted to the tissue between the two electrodes rather than the entire body of the patient.

No neutral electrode is therefore required.

4. Prearrangement

4.1. Setting up the HF device



NOTE

Electromagnetic fields are generated during normal use of the HF device. This can adversely affect other devices.

- ▶ Ensure that no electronic devices are placed in the vicinity of the HF device.



WARNING

Shock hazard

- ▶ Always connect the HF device to a grounded power distribution system in order to prevent electric shock.



DANGER

Risk of burns to patients due to excessive leakage current

- ▶ Locate the HF device outside the immediate vicinity of the patient, see section Ambient conditions, page 12.



HF devices may be used only in rooms used for medical purposes that meet the requirements of DIN VDE 0100-710.



If the HF device was previously stored or transported at temperatures below +10 °C or a relative humidity above 75%, non-condensing, it will take approximately three hours to adjust to room temperature.

1. Observe the specified operating conditions (see Section Operating conditions, page 27).
2. Place the HF device on one of the following platforms:
 - a table;
 - an equipment trolley;
 - a console suspended from a ceiling support or wall-mounted brackets.
3. Place the HF device a sufficient distance away from other electronic equipment, see Section EMC, page 159.
4. Position the HF device with the front of the device facing the patient and surgeon.
5. Do not place any other devices on the HF device.

6. Do not place any other objects on or above the HF device.
7. Place the HF device on top of ARC PLUS only, do not place it on other devices.
8. Connect the power cord.

4.2. Switching on the HF device



Do not use the HF device if the display components are not working. See Section Detecting and correcting faults, page 99 for troubleshooting instructions.

- The line voltage must match the voltage specified on the nameplate. Connect the power cord to the generator and plug the cord into a grounded AC power outlet.

1. Switch the HF device on using the power switch **31** on the rear side of the unit and touch the On/Off button on the front panel.



- ↪ The HF unit performs a self-test: All user interface components light up.
- ↪ The bars of the activation display light up, while the connector surrounds light up orange.
- ↪ Full functionality of the loudspeaker is indicated by the start melody.
- ↪ The individually configurable start screen appears if it has been set up.

2. Check all controls and indicators for proper operation:

- Power switch
- On/off switch
- Touchscreen
- Monopolar socket connectors
- Bipolar socket connectors
- Activation bar for monopolar and bipolar sockets

-
- ↪ The main screen appears, and the HF device is ready for use.
 - ↪ The parameters of the most recently selected program appear on the display.
-

NOTE



Standby mode

The standby mode of the HF device is described as follows:
The power switch 31 on the rear panel of the HF device is switched on and the front-panel On/Off button 1 is switched on, with the on/off button 1 illuminated orange.
(IEC 60601-2-2:2010 Section 201.11.8)

4.3. Connecting instruments

Before connecting instruments, ensure that the following conditions are met:

- Combinations of accessories not mentioned in the operating manual may be used only if they are explicitly designed for the intended use. Always observe performance characteristics and safety requirements.
- The insulation of the accessories (e.g. HF cables and instruments) must be sufficient for the maximum peak output voltage (see IEC 60601-2-2 and IEC 60601-2-18).
- Do not use accessories with defective insulation.

4.3.1. Instruments for monopolar use

1. Plug the neutral electrode cable into the socket for the neutral electrode and choose the corresponding neutral electrode type, see chapter Selecting the neutral electrode, page 46.
 - ↳ The socket illumination goes dark.
 - ↳ The neutral electrode button changes from grey to the measurement colour (green, yellow or red).
2. Connect the electrode handle to one of the two monopolar socket connectors.
 - or –
 - In the case of an accessory without a finger button, connect a footswitch to the socket connector. Connect the Bovie connector of the monopolar cable to the socket connector.
 - or –
 - Connect the monopolar cable for endoscopy to one of the two monopolar socket connectors for monopolar instruments.

4.3.2. Instruments for bipolar applications

1. Connect the bipolar cable to the instrument (e.g. forceps).
2. Connect the bipolar cable to one of the two bipolar socket connectors.
3. For bipolar use without AUTOSTART, connect a footswitch to the socket connector.
 - or –
 - Use the AUTOSTART mode for the appropriate socket connector.
- ↳ Once the instrument is connected, the application starts after the configured delay time.

4.3.3. Connecting a foot switch

In addition to the manual switch, a foot switch can be used to activate various operating modes.

Connect the desired foot switch only during operation to one of the two socket connectors for foot switches.

- ↳ The HF device automatically detects the connected foot switch and indicates this on the front panel display, including the selected socket connector.



One double-pedal foot switch and one single pedal foot switch can be connected. Foot switches without an orange changeover switch cannot be used.

During the operation, the ARC PLUS may only be connected to the foot switch and if necessary to an OP system (see Section 3.4.1/3.4.2) by fibre-optic cables plugged in at the rear of the device.

The following foot switch systems can be connected to the HF device:

Item no.	Designation
901-011	Single-pedal foot switch with switch
901-031	Double-pedal foot switch with switch
901-032	Double-pedal foot switch with switch and clip

4.4. Functional test

4.4.1. Auto test function

The HF device automatically performs cyclic testing during operation. If any faults occur, see Section "Detecting and correcting faults", page 99.

4.4.2. Functional testing

Perform the following functional test before putting the device into service:



The accessories must be designed for the specified maximum voltage.

1. Connect the neutral electrode and attach it securely to the patient's arm.
 - ↳ The EASY neutral electrode indicator changes to green.
2. Remove the neutral electrode.
 - ↳ The indicator changes to red, acoustic signals sound.



The neutral electrode used for this test may not later be used for an operation.

3. Connect a monopolar HF handle to a monopolar socket connector if there is a green EASY indicator and use the manual switch and footswitch to individually activate "Cut" and "Coag".
4. Check the settings on the display.
5. Now change to the bipolar output and connect bipolar forceps.
6. Select a mode with AUTOSTART, grasp moist gauze with the forceps, and check the display.
7. Now change to a mode without AUTOSTART and use the footswitch to activate the bipolar output. Check the settings and indicators in the bipolar section.

4.4.3. Actions in case of problems

Proceed as follows in case of functional problems:

1. Immediately disconnect the patient from the HF device.
2. Inspect the HF device and perform a functional test.
3. Report incidents and near-accidents to the German Federal Institute for Medications and Medical Products in accordance with Section 3 of the German Ordinance on the Installation, Operation and Use of Medical Products (MPBetreibV). Observe the provisions of the in-house reporting system in this regard.
4. Consult the Technical Service department, see Section Technical service, page 109.



In an emergency, the HF device can be switched off at any time by the power switch 31, which fully disconnects the device from the mains.

4.5. Neutral electrode monitoring



Always use the largest possible electrode when attaching a neutral electrode.

4.5.1. General information



BOWA recommends using split neutral electrodes, since only this type of electrode allows the HF device to detect detachment of the neutral electrode if this occurs.

Monitoring of the neutral electrode minimizes the risk of burns at the site where the neutral electrode is attached.

Two types of neutral electrodes can be monitored:

- Split electrodes for infants (for use with reduced power)
- Split neutral electrodes

The type of neutral electrode and its contact quality are selected and/or shown in Neutral Electrode Modes menu.



Figure 4-1: Neutral electrode modes

Faults related to the neutral electrode and possible remedies are shown on the display, see Section "Detecting and correcting faults", page 99.

4.5.2. EASY neutral electrode monitoring (EASY monitoring)



The maximum output power of monopolar current types is reduced to 50 W when a children's electrode is selected.

The EASY monitoring function measures changes in the resistance between the patient and the high-frequency surgery device before and during HF activation. If necessary, it generates visual and audible alarms to request staff intervention. This requires using a split neutral electrode with appropriate contact areas and suitable contact resistance, attached to the patient according to the manufacturer's instructions. The EASY system does not monitor the currents through the individual contact surfaces of the split neutral electrode.

A BOWA electrode with a surface area of at least 90 cm² must be used for the "Resection" programs and the "Moderate Coagulation" mode.

If an error message is generated, the display changes from green via yellow to red, depending on the type of fault.

NOTE



Risk of incorrect application of the neutral electrode!

- ▶ Ensure compliance with the specifications for correct attachment of the neutral electrode with regard to size, adhesive properties and full-surface contact of the complete electrode.

4.6. Turning the device off

Press the On/Off button (1) to switch off the device. Also switch off the power switch (31) on the rear panel (mains disconnection).

NOTE

Switching off the device with the front panel On/Off button (Suspend Mode)



- ▶ After the medical device has been switched off and on by the On/Off button 1 on the front panel, the last (most recently) saved parameters (defined settings) are reloaded.
- ▶ In an emergency, an enabled output can be disabled at any time by switching off the On/Off button 1 on the front panel.

NOTE

Switching off the device with the power switch on the rear panel (power interruption longer than 15 seconds)



- ▶ After a supply voltage interruption longer than 15 seconds, the parameter settings for the currently selected program that were last saved in non-volatile memory are reloaded.

NOTE

Brief power interruption shorter than 15 seconds



- ▶ After a supply voltage interruption shorter than 15 seconds, the parameter settings for the currently selected program that were last saved in volatile memory are reloaded.
-

5. Operation

5.1. Program overview

5.1.1. Display

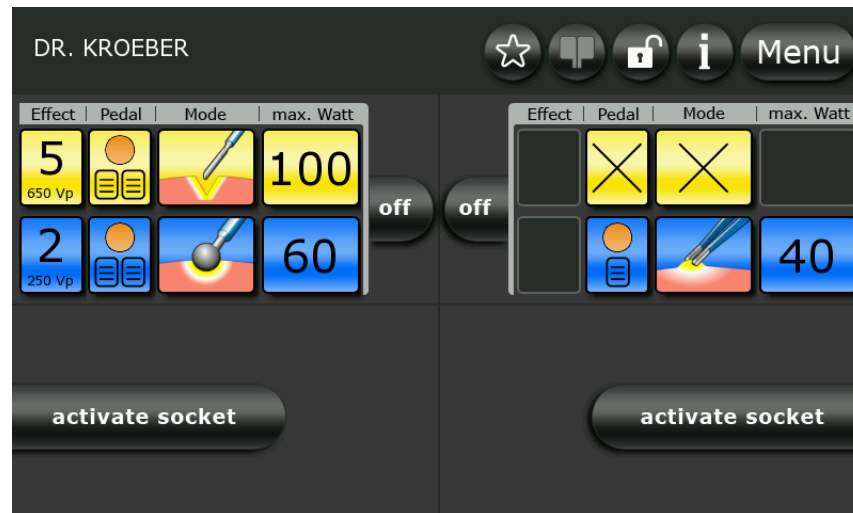


Figure 5-1: Main screen

The status bar is located at the top of the display.

The settings of the four socket connectors are shown below the status bar.

Settings can be configured for each of the connectors.

The "Effect" button is used to set the effect of electrosurgical cutting.

The "Pedal" button allows the activation of specific functions to be assigned to the foot pedal.

The "Mode" button allows the desired type of current to be selected.

The "max. Watt" button is used to set the maximum output power.

The "max. Watt" power settings are relative values. This setting configures the maximum value of the desired upper power limit. Measured power values can and may therefore deviate from the characteristic power curves (see Section 10.2) by $\pm 20\%$.

5.1.2. Status bar



Figure 5-2: Status bar with Favourite

Five buttons are located on the status bar: "Favourite", "EASY", "Keylock", "Help" and "Menu".

The "Argon" button is also displayed in conjunction with ARC PLUS and selection of an Argon mode.



Figure 5-3: Status bar with Argon

5.2. Activating and deactivating connectors



Figure 5-4: Deactivated socket

► To activate a deactivated socket connector, plug a connecting cable into the connector.

– or –

Press the "activate socket" button.

↵ An overview of the connector settings appears.



Figure 5-5: Unused socket

The overview is greyed out if no instrument is connected to the socket connector.



Figure 5-6: Activated socket

The socket illumination extinguishes and connector lights up when an instrument is plugged in.

► To hide the selection, press the "off" button next to the connector settings overview.

The socket cannot be hidden when an instrument is plugged in.

5.3. Unlocking the screen

The device screen is locked automatically. To unlock it, press any key and then drag the slider from left to right. An open padlock icon will appear on the status bar.

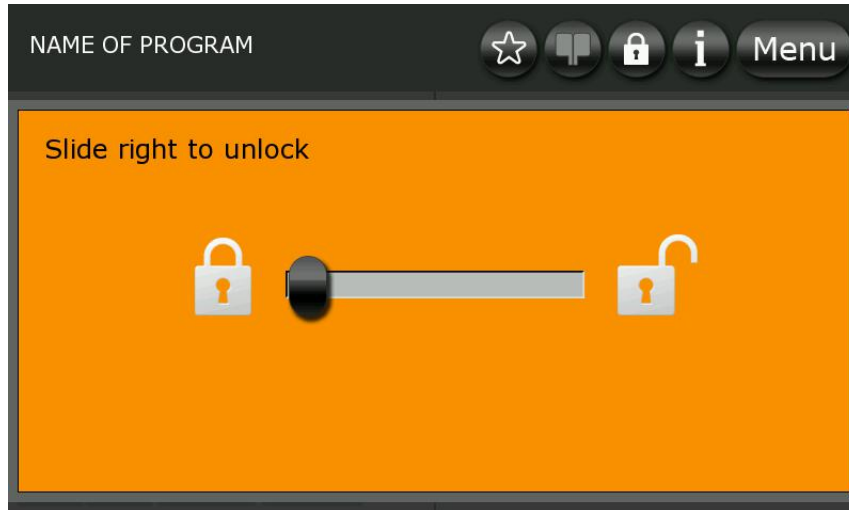


Bild 5-7: Unlocking the screen

You can disable key locking or change the time delay for automatic screen locking; see Section Menu "System Settings" dialog", page 80.

5.4. Configuring output currents



All selection windows are closed 10 seconds after the last screen touch.



If selection windows are open, all screen areas outside this area have the same effect as the "Back" button.
Activations also have the same effect as the "Back" button.



A change to the currently loaded program, e.g. by adjusting the output, is indicated by the information "changed" below the program name.

5.4.1. Selecting the mode

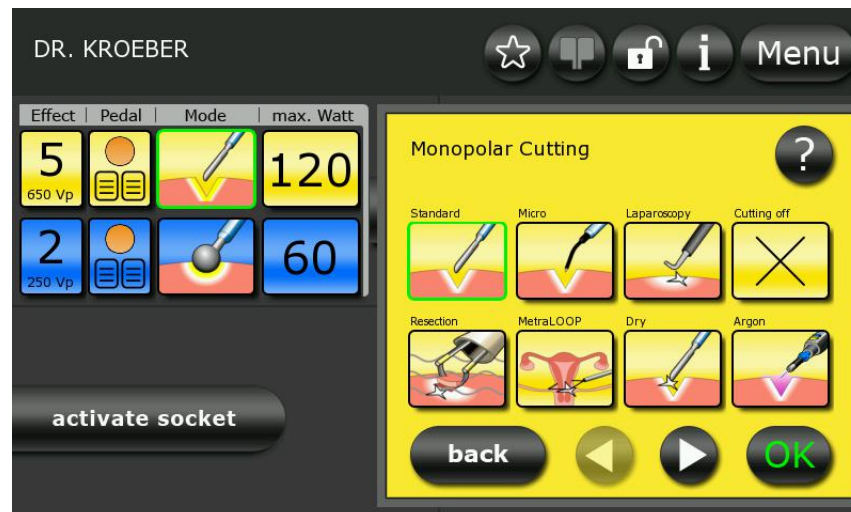


Figure 5-8: Modes monopolar cutting

1. To select the type of current for monopolar cutting, first select one of the two socket connectors on the left side.
2. Press the yellow icon under the "Mode" button.
- ↳ A selection screen appears for the available modes, and the rim of the associated connector starts blinking.
3. Select the desired mode by pressing the corresponding button.
- or -
Deactivate the mode by pressing the button "mode off".
4. Press the "?" button for more information on this selection.
5. Additional options in the selection window can be accessed with the arrow keys..
6. Confirm your selection by pressing the "OK" button.
- ↳ The main screen will be displayed.
- or -
Press the "Back" button to return to the main screen without changing the selection.



If a mode is changed within a socket, the set parameters, e.g. effect and max. Watt, remain the same for the respective mode. However, if, for example, the factory default setting of a mode is adapted and subsequently changed to a different mode and then back again, the user changes are not undone.

5.4.2. Specifying power limits

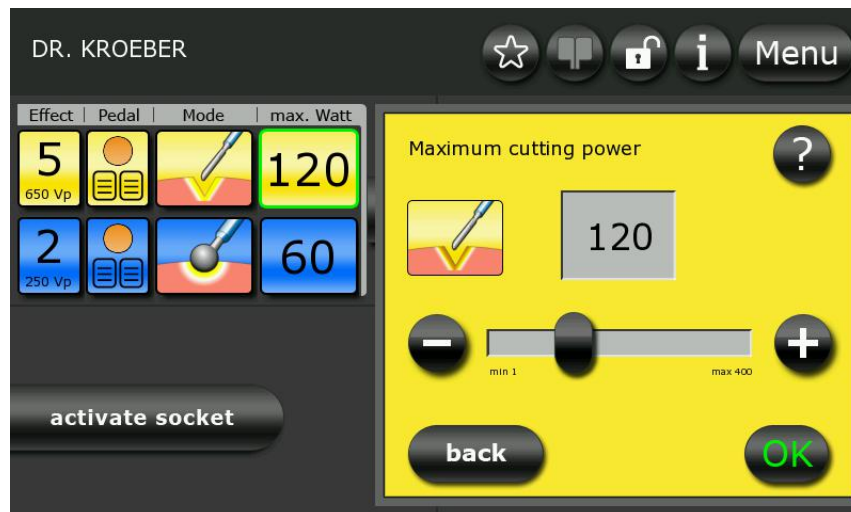


Figure 5-9: Maximum power monopolar cutting

1. To select the maximum current for monopolar cutting, first select one of the two socket connectors on the left side and press the yellow icon under the "max. Watt" button.

The "max. Watt" power settings are relative values. This setting configures the maximum value of the desired upper power limit. Measured power values can and may therefore deviate from the characteristic power curves (see Section 10.2) by $\pm 20\%$.

2. Use the "+" and "-" buttons to adjust the power level in single steps.
– or –
Use the slider to set the power level in steps of 10.
3. Press the "?" button for more information on this selection.
4. Confirm your selection by pressing the "OK" button.
– or –
Press the "Back" button to return to the main screen without changing the selection.

5.4.3. Selecting the effect



Figure 5-10: Effect monopolar cutting

1. To select the effect for monopolar cutting, first select one of the two socket connectors on the left side and press the yellow icon under the "Effect" button.
2. Use the "+" and "-" buttons to adjust the effect in individual steps.
- or -
Use the slider to set the effect.
3. Press the "?" button for more information on this selection.
4. Confirm your selection by pressing the "OK" button.
- or -
Press the "back" button to return to the main screen without changing the selection.

5.4.4. Assigning the foot pedal



Handles and instruments with manual switches can be activated without a configuration setting.

A single-pedal foot switch and/or double-pedal foot switch, each with a changeover switch, can be connected,

The changeover switch enables switching between pedal levels.

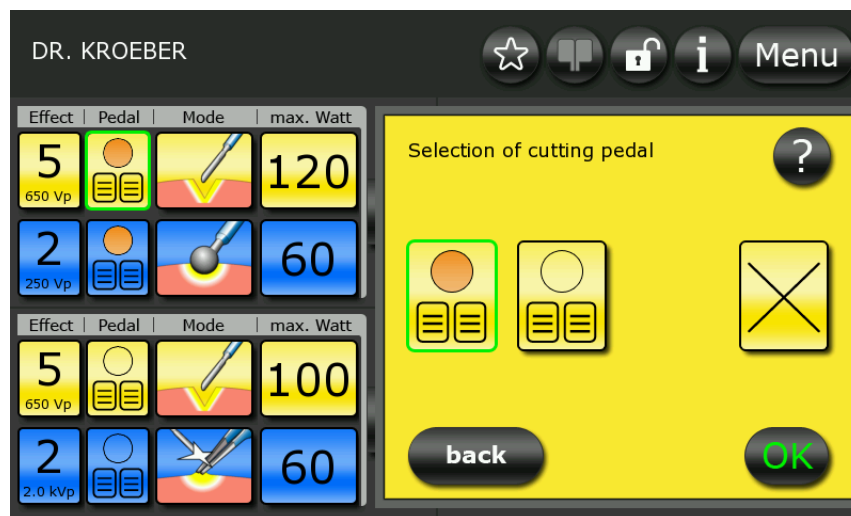


Figure 5-11: Foot switch selection cutting

1. Select the footswitch menu by pressing the button "Pedal".
2. Select the desired foot switch by pressing the corresponding button.
For example, choose the active pedal level for cutting and coagulation of the upper left socket.
- or -
Deactivate the foot switch by pressing the button marked with a „X“.
- ↳ The edge of the selected button lights up green.
3. Confirm the selection by pressing the "OK" button.
- or -
Press the "Back" button to return to the main screen without changing the selection.
- ↳ The socket is assigned to the active pedal level.
4. Pedal levels can be changed using the foot switches. Press the orange button to change the socket.
- ↳ The orange background indicates that the lower left-hand socket is activated.

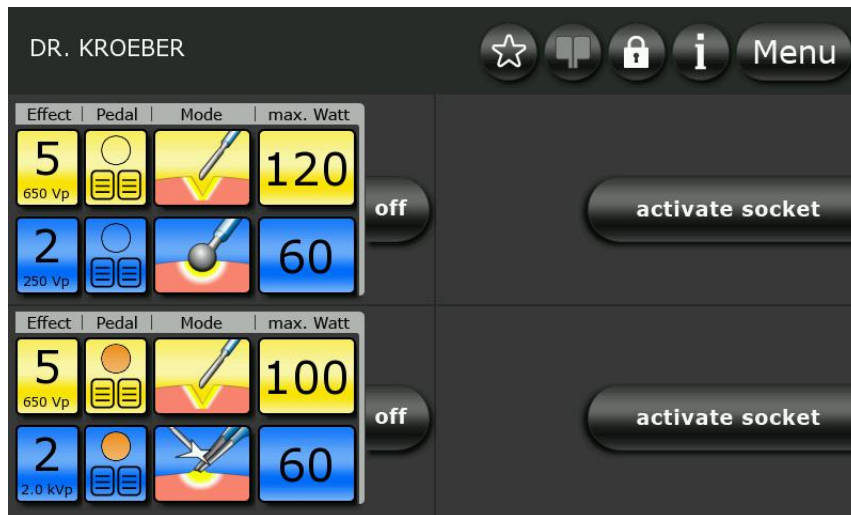


Figure 5-12: Foot switch changeover



If two footswitches are connected, either a single-pedal footswitch or a double-pedal footswitch can be selected for coagulation.

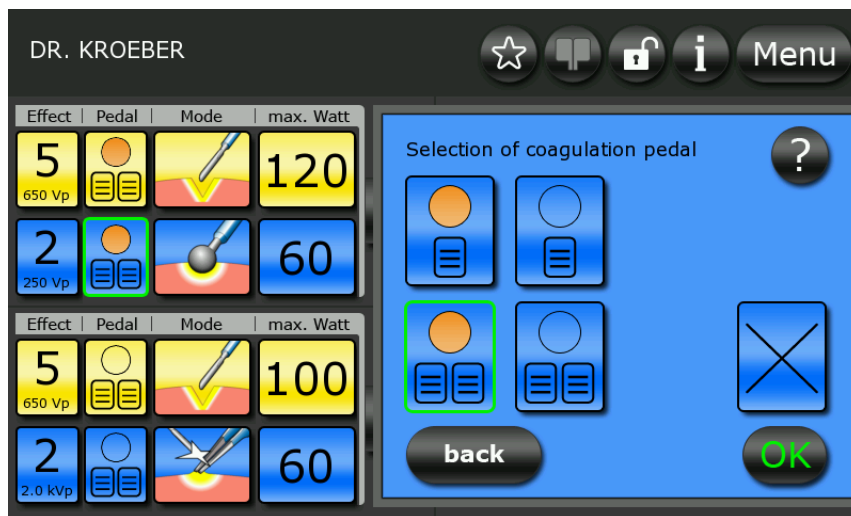






















Figure 5-13: Foot switch selection coagulation

The following pedal icons can be differed:

Icon / Button	Description	Icon / Button	Description	Icon / Button	Description
	Double pedal foot switch CUT active		Double pedal foot switch CUT active not connected		Double pedal foot switch CUT inactive
	Double pedal foot switch not connected		Deactivate foot switch CUT		Deactivate foot switch COAG
	Double pedal foot switch COAG active		Double pedal foot switch COAG active not connected		Double pedal foot switch COAG inactive
	Double pedal foot switch not connected		Single pedal foot switch not connected		Single pedal foot switch COAG inactive
	Single pedal foot switch COAG active		Single pedal foot switch COAG active not connected		
	Double pedal ZAP Mode COAG active		Double pedal ZAP Mode COAG inactive		Single pedal ZAP Mode COAG active
	Single pedal ZAP Mode COAG inactive		Double pedal ZAP Mode CUT active		Double pedal ZAP Mode CUT inactive

5.4.5. Selecting the neutral electrode

1. Press the "EASY" button on the status bar to select the neutral



electrode.

Figure 5-14: Neutral electrode



The maximum power output of monopolar current types is reduced to 50 W when a children's electrode is selected.

2. Select the type of connected electrode by pressing the corresponding icon:
 EASY: for monitoring split neutral electrodes
 BABY: for monitoring split neutral electrodes for infants
 MONO: to select a one-piece neutral electrode
 3. Press the "?" button for more information on this selection.
 4. Confirm your selection by pressing the "OK" button.
 - or -
 Press the "Back" button to return to the main screen without changing the selection.
- ↳ The selected type of neutral electrode in connection with a colour-indicator for the contact quality is shown in the status bar.



When using the „EASY“ and „BABY“ mode, no unsplit electrodes are accepted.

Using the „MONO“ mode, no split electrodes are accepted.

The “Monopolar Resection” and “Metraloop” programs are not allowed when the Baby electrode is selected.

According to the contact quality, several icons are shown for neutral electrodes:

Icon / Button	Description	Icon / Button	Description
	Split neutral electrode contact quality OK		Non split neutral electrode contact quality OK
	Split neutral electrode contact quality not optimum		Non split neutral electrode not detected or contact quality insufficient
	Split neutral electrode contact quality insufficient		Non split neutral electrode not connected / recognised
	Split neutral electrode not connected / recognised		Display contact quality
	Split baby neutral electrode contact quality OK		
	Split baby neutral electrode contact quality not optimum		
	Split baby neutral electrode contact quality insufficient		
	Split baby neutral electrode not connected / recognised		

5.4.6. Dr. Dongle®

Dr. Dongle is an individual memory stick on which up to six programs can be saved for subsequent use.

- ▶ Insert your Dr. Dongle with your personal settings into every ARC 400 at any **bipolar socket**.
- ↪ The data is read as soon as you insert Dr. Dongle or after changing a program with Dr. Dongle inserted:



Figure 5-15: COMFORT function detected

- ↪ After a short loading period, an overview of the saved programs appears automatically as a new user interface.

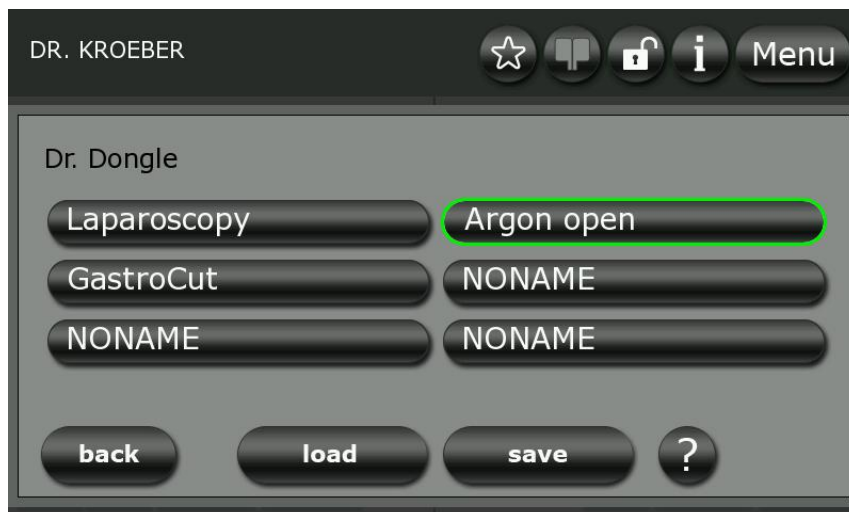


Figure 5-16: Dr. Dongle program selection

Save current program on Dr. Dongle:

The program currently loaded in ARC 400 can be saved on Dr. Dongle:

1. In the overview, select a program storage space to be overwritten.
 2. Press "save" to save the currently loaded program at the selected space.
 3. A keyboard appears which can be used to enter a name for the program.
- ↳ The program is now saved on Dr. Dongle.
4. Press the "back" button to return to the main screen.
- ▶ Dr. Dongle can now be removed



If the Dr. Dongle is plugged in, the Dr. Dongle screen is displayed after you touch the program name, "Program" or "Save program".

Load a program from Dr. Dongle:

A program saved on Dr. Dongle can be loaded onto any ARC 400:

1. Select a program saved on Dr. Dongle from the overview by touching the program name.
 2. Press "load" to load the selected program.
- or -
Press "back" to return to the main screen without carrying out changes to the selection.
- ↳ The selected program is now active in the main screen of ARC 400.
- ▶ Dr. Dongle can be removed
- or -
Save the loaded program in the program list, see "Save program" dialog, page 86.

5.4.7. Plug'n Cut COMFORT

The automatic instrument identification Plug'n Cut COMFORT recognises the connected BOWA COMFORT instrument and selects the default parameters automatically.

1. Insert the COMFORT instrument into a socket of ARC 400.

↳ The instrument data is read



Figure 5-17: Plug'n Cut COMFORT

↳ A description of the instrument appears:

- Instrument name
- Recognised socket
- Item number
- Lot number
- Remaining use cycles with reusable instruments. Remaining use cycles are not displayed with disposable instruments.

↳ The parameters are accepted automatically after 5s and shown on the main screen.

- If the COMFORT instrument is connected to a socket **without preset parameters**, the ideal settings for the BOWA COMFORT instrument are loaded via Plug'n Cut COMFORT.
- If the COMFORT instrument is connected to a socket **with preset parameters**, a plausibility check is carried out. The preset values for the COMFORT instrument are not overwritten if they are within a permissible range. The COMFORT instrument can now be used with the preset parameters.

- or -

Press "OK" to accept the selection.

Press "back" to return to the main screen without carrying changes to the selection.

↳ The COMFORT instrument can now be used.

↳ The permissible parameters for the BOWA COMFORT instrument remain accessible; all other modes are greyed out.

5.4.8. Playing videos

1. Plug the delivered BOWA USB stick into the connection on the rear side of the ARC 400.
2. To play the video, press the “Play” button in the operating manual dialog.

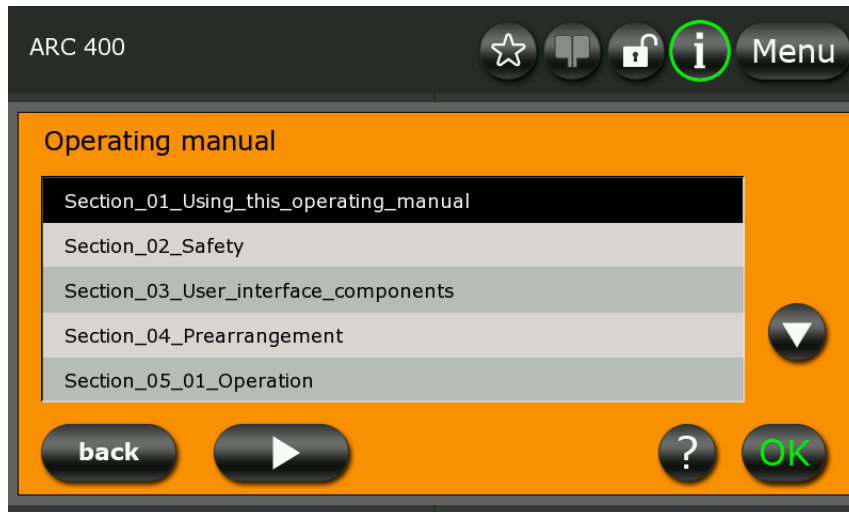


Figure 5-18: Operating manual dialog

3. To stop the video, switch off the device.



The device restarts normally.

5.4.9. Configuring the startup screen

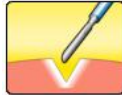
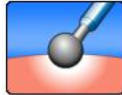







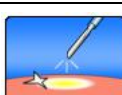




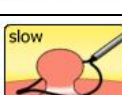

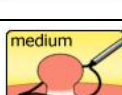

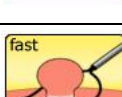

ARC 400 offers the possibility to display a personalized start screen. This start screen appears after each switching on of the unit for a configurable period of time.

1. Create a folder with the name "arc_logo" on the USB flash drive (REF 900-402).
 2. Open the Windows program " Notepad.exe " and enter a number between 5 and 60 for the displayed duration in seconds.
 3. Save this file on the USB flash drive in the folder "arc_logo" under the name "KH_Logo.conf". Make sure that the file is stored as type "All Files (*. *)" and encoding "UTF -8".
 4. Create a startup screen with a resolution of 800 x 480 pixels and save it under the name "KH_Logo_arc400.png" in the folder "arc_logo".
 5. Plug the USB flash drive with the files created in the USB port of the ARC 400 and turn the unit on using the main switch.
Make sure that there are no other data on the USB flash drive.
 6. Wait until the ARC 400 is fully booted and the user interface appears.
 7. To configure the start screen, select Service Level 1 under Menu / Service (see section 5.10.4).
 8. Press the "Add Logo" button to add the start screen.
 9. Switch the ARC 400 off and then on to check correct acceptance.
- Now your generated startup screen is permanently stored in the device and appears after every switching-on for the specified duration.

5.5. Mode overview








An overview of the programs that can be executed with the HF device is shown below.

5.5.1. Monopolar modes


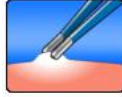

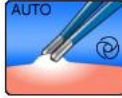

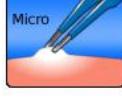








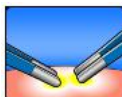

Cutting mode icon	Designation	Coagulation mode icon	Designation
	Standard		Moderate
	Micro		Forced non cutting
	Dry		Forced mixed
	MetraLOOP		Forced cutting
	Resection		Spray
	Laparoscopy		Laparoscopy
	Argon*		Argon*
 slow	GastroLOOP 1		Argon flexible*
 medium	GastroLOOP 2	 Pulsed 4.4kV	Argon flex. pulse*
 fast	GastroLOOP 3		Gastro Coag



* These modes can only be used in connection with the argon coagulation unit ARC PLUS (900-001).

Cutting mode icon	Designation	Coagulation mode icon	Designation
	GastroKNIFE 1		Resection
	GastroKNIFE 2		Cardiac Mammary
	GastroKNIFE 3		Cardiac Thorax
			SimCoag

5.5.2. Bipolar modes

Cutting mode icon	Designation	Coagulation mode icon	Designation
	Standard		Standard forceps
	Bipolar resection ^R		Standard forceps AUTO
	Bipolar scissors		Micro forceps
	Vaporisation ^R		Forceps forced
			LIGATION ^L
			TissueSeal PLUS ^L
			Bipolar scissors
			Laparoscopy
			Micro laparoscopy
			Bipolar resection ^R
			SimCoag ^S
			Vaporisation ^R



^R These modes are available with the option Bipolar Resection (900-395).

^L These modes are available with the option LIGATION (900-396).

^S This mode is available with the option Bipolar SimCoag (900-399).

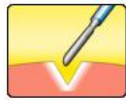


The information and data regarding settings, application points, application duration and instrument use are based on clinical practice. However, these are only basic guidelines which must be tested for suitability by the operator. Depending on individual conditions, it may be necessary to deviate from the provided data.

Medical practice is continuously evolving as a result of R&D and clinical experience. This may also make deviations from the provided data necessary.

5.6. Monopolar cutting modes

5.6.1. Standard



In this mode a high-performance HF current with a low crest factor is used for cutting biological tissue. ARC CONTROL quickly adjusts the power output to the minimum required level in response to variations in tissue type and changes in the cutting area or speed.

Application areas

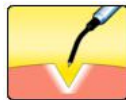
Cutting tissue with low electrical resistance, such as muscle tissue or vascular tissue.

Cutting or preparing fine structures

Suitable instruments

- Needle electrodes
- Knife electrodes
- Spatula electrodes
- Sling electrodes

5.6.2. Micro



This mode is used for electrosurgical cutting using micro-electrodes. It enables extremely fine control of the power level and precise work.

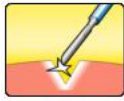
Application areas

Pediatric surgery, neurosurgery, plastic surgery

Suitable instruments

- Micro needle electrodes

5.6.3. Dry



This mode is used for monopolar dry cutting. A large, controlled arc is generated, which allows significantly deeper coagulation to be obtained.

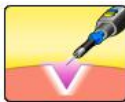
Application areas

Cardiac surgery and blood coagulation in retracting blood vessels in the sternum region.

Suitable instruments

- Knife electrodes

5.6.4. Argon



This mode is used to perform open surgical interventions in combination with the ARC PLUS companion device for argon-assisted cutting. With suitable instruments connected, argon-assisted cutting can be performed using rigid electrodes.

Application areas

Visceral surgery

Suitable instruments

- Rigid argon electrodes
- Argon handle

5.6.5. Resection



This mode is used in gynecology and urology. ARC control generates the cutting effect with simultaneously minimized output power. ARC control facilitates direct cutting and prevents electrode adhesion.



Use non-conductive irrigation fluids.

Application areas

Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP).

Suitable instruments

- Resectoscope (monopolar)
- Resection sling
- Rollerblade electrode

5.6.6. MetraLOOP



This mode is used in gynecology for laparoscopic hysterectomy. Removal of the uterus can be achieved by applying monopolar cutting current and pulling on the sling at the same time.

Application areas

Gynecology; laparoscopic hysterectomy

Suitable instruments

- Gynecological slings

5.6.7. Laparoscopy



This mode is used in laparoscopy and arthroscopy for monopolar cutting.

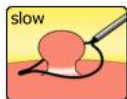
Application areas

Laparoscopy, arthroscopy

Suitable instruments

- Arthroscopy electrodes
- Laparoscopy electrodes

5.6.8. GastroLOOP 1



This mode is used in gastroenterology. Polypectomy snares are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a series of cutting current pulses followed by a coagulation phase. With a relatively slow pulse rate of 1 cutting pulse per second, this mode is suitable for especially cautious work.

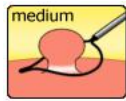
Application areas

Polyp removal using polypectomy snares and flexible endoscopy

Suitable instruments

- Polypectomy snares

5.6.9. GastroLOOP 2



This mode is used in gastroenterology. Polypectomy snares are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a series of cutting current pulses followed by a coagulation phase. With an accelerated pulse rate of 1.5 cutting pulses per second, this mode is suitable for experienced users.

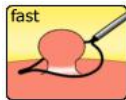
Application areas

Polyp removal using polypectomy snares and flexible endoscopy, with accelerated pulse rate for experienced users.

Suitable instruments

- Polypectomy snares

5.6.10. GastroLOOP 3



This mode is used in gastroenterology. Polypectomy snares are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a series of cutting current pulses followed by a coagulation phase. With an accelerated fast pulse rate of 2.2 cutting pulses per second, this mode is suitable for advanced users.

Application areas

Polyp removal using polypectomy snares and flexible endoscopy, with accelerated fast pulse rate for advanced users.

Suitable instruments

- Polypectomy snares

5.6.11. GastroKNIFE 1



This mode is used in gastroenterology. Instruments for papillotomy and endoscopic resections are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a pulse sequence of cutting current and coagulation phase. With a relatively slow pulse rate of 1.3 cutting pulse per second, this mode is suitable for especially cautious work.

Application areas

Papilla incision using a papillotome and flexible endoscopy, resection with needle knives; slow pulse rate for cautious work.

Suitable instruments

- Papillotome
- Needle knives

5.6.12. GastroKNIFE 2



This mode is used in gastroenterology. Instruments for papillotomy and endoscopic resections are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a pulse sequence of cutting current and coagulation phase. With an accelerated pulse rate of 1.8 cutting pulses per second, this mode is suitable for experienced users.

Application areas

Papilla incision using a papillotome and flexible endoscopy, resection with needle knives; accelerated pulse rate for experienced users.

Suitable instruments

- Papillotome
- Needle knives

5.6.13. GastroKNIFE 3



This mode is used in gastroenterology. Instruments for papillotomy and endoscopic resections are used for cutting and coagulation. ARC control generates the cutting effect with simultaneously minimized output power. This mode consists of a pulse sequence of cutting current and coagulation phase. With an accelerated fast pulse rate of 2.2 cutting pulses per second, this mode is suitable for advanced users.

Application areas

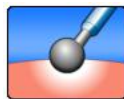
Papilla incision using a papillotome and flexible endoscopy, resection with needle knives; accelerated fast pulse rate for advanced users.

Suitable instruments

- Papillotome
- Needle knives

5.7. Monopolar coagulation modes

5.7.1. Moderate



This mode is used with contact coagulation to stop hemorrhagic oozing, for hemostasis of relatively large tissue areas, and for small-area coagulation. Tissue carbonization is prevented and electrode adhesion to the tissue is strongly reduced. Greater coagulation depth is achieved in this mode than in other coagulation modes. The degree of surface scabbing can be controlled by adjusting the "Effect" setting in the range of 1 to 3.

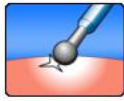
Application areas

Coagulation with relatively high penetration depth; low electrode adhesion to tissue

Suitable instruments

- Electrodes with large contact areas, such as ball electrodes

5.7.2. Forced non cutting



This mode is used for contact coagulation with low tissue penetration, preferably using fine electrodes and electrodes with small contact areas. It achieves a high degree of coagulation with low cutting tendency.

Application areas

Fast coagulation with small penetration depth

Suitable instruments

- Ball electrodes
- Knife electrodes
- Spatula electrodes

5.7.3. Forced mixed



This mode is used for contact coagulation with low tissue penetration, preferably using fine electrodes and electrodes with small contact areas. It achieves a high degree of coagulation with moderate cutting tendency.

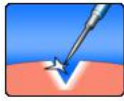
Application areas

Fast coagulation with small penetration depth and moderate cutting tendency

Suitable instruments

- Knife electrodes
- Spatula electrodes
- Insulated monopolar forceps

5.7.4. Forced cutting



This mode is used for contact coagulation with low tissue penetration, preferably using fine electrodes and electrodes with small contact areas. It achieves good hemostasis with very good cutting tendency.

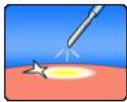
Application areas

Fast coagulation with small penetration depth and very good cutting tendency

Suitable instruments

- Knife electrodes
- Spatula electrodes
- Needle electrodes

5.7.5. Spray



This mode is used with non-contact surface coagulation using an arc, for hemostasis in parenchymal tissue, in poorly accessible crevices, and in conjunction with argon coagulation.

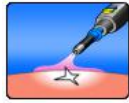
Application areas

Promoting coagulation of diffuse bleeding

Suitable instruments

- Ball electrodes
- Knife electrodes
- Spatula electrodes
- Needle electrodes

5.7.6. Argon



This mode is used for open surgical interventions in conjunction with the ARC PLUS accessory device for argon-assisted electrocoagulation.

This is the current type Spray.

With suitable instruments connected, argon-assisted coagulation can be performed using rigid electrodes.

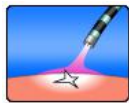
Application areas

Visceral surgery

Suitable instruments

- Rigid argon electrodes
- Argon handle

5.7.7. Argon flexible



This mode is used for argon-assisted electrosurgery in conjunction with the ARC PLUS accessory device.

This is the current type Spray.

For argon-assisted coagulation, flexible probes are used in combination with endoscopes.

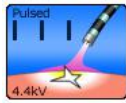
Application areas

Gastroenterology, homogeneous surface coagulation

Suitable instruments

- Flexible argon probes

5.7.8. Argon flex. pulse



This mode is used for argon-assisted electrosurgery in conjunction with the ARC PLUS accessory device.

This is the current type Spray.

For argon-assisted coagulation, flexible probes are used in combination with endoscopes.

The puls frequency changes with the effect setting. The higher the effect level, the faster the pulse sequence.

Application areas

Gastroenterology, homogeneous surface coagulation

Suitable instruments

- Flexible argon probes

5.7.9. Resection



This mode is used for monopolar hemostasis in gynecology and urology.



Use non-conductive irrigation fluids.

Application areas

Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP).

Suitable instruments

- Resectoscope (monopolar)
- Resection sling
- Rollerblade electrode

5.7.10. Cardiac Mammary



This mode is used in mammary surgery and cardiac surgery. It produces forced coagulation.

Application areas

Mammary surgery and cardiac surgery

Suitable instruments

- Knife electrodes

5.7.11. Cardiac Thorax



This mode is used in thoracic surgery. It produces forced coagulation.

Application areas

Thoracic surgery

Suitable instruments

- Knife electrodes

5.7.12. SimCoag



This mode is used for simultaneous preparation. Two monopolar socket connectors can be activated at the same time to enable the simultaneous use of two manually switched instruments. Both handpieces can be switched on and off independently.

The current type changes with the effect setting:

Effect 1: Forced cutting

Effect 2: Forced mixed

Effect 3: Spray



The output power setting applies to both output sockets, and the power is distributed according to the tissue structure.

Application areas

Simultaneous coagulation and preparation, e.g. for cardiac or mammary surgery

Suitable instruments

- Ball electrodes
- Knife electrodes
- Spatula electrodes

5.7.13. Gastro Coag



This mode is used in gastroenterology with contact coagulation for the coagulation of small areas.

Application areas

After bleeding associated with polypectomies or papillotomies.

Suitable instruments

- Polypectomy snares
- Papillotome

5.7.14. Laparoscopy



This mode is used in laparoscopy and arthroscopy for monopolar coagulation.

Application areas

Laparoscopy, arthroscopy

Suitable instruments

- Arthroscopy electrodes
- Laparoscopy electrodes

5.8. Bipolar cutting modes

5.8.1. Standard



This mode is used for cutting with bipolar laparoscopic instruments.

Application areas

Laparoscopic cutting

Suitable instruments

- Laparoscopic instruments

5.8.2. Bipolar resection (optional)



This bipolar mode is used in gynaecology and urology for resection with loop electrodes under conductive rinsing liquid (saline solution). ARC control technology generates the cutting effect with simultaneously minimized output power. ARC Control facilitates immediate cutting and prevents electrode adhesion.



Make sure that NaCl is used as an irrigation medium.
 Secure a continuous irrigation during the application.
 Always use conductive lubricants to avoid damages of the urethra.
 Avoid continuous activations.

Application areas

Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP).

Suitable instruments

- Resectoscope (bipolar)
- Resection sling



This function is available if the device has the option Bipolar Resection (900-395).



Optimum results are provided exclusively when using BOWA COMFORT resection cables.

5.8.3. Bipolar scissors



This mode is used with bipolar scissors. It can be used for coagulation before or during cutting, point coagulation, coagulation of cuts and surface coagulation.

Application areas

Preparation, coagulation and cutting of tissue

Suitable instruments

- Bipolar scissors



Bipolar scissors should only be operated with the current type bipolar scissors cutting or bipolar scissors coagulation.

5.8.4. Vaporisation



This bipolar mode is used in gynaecology and urology for vaporisation. An arc is struck immediately on tissue contact, enabling fast tissue vaporisation with low heat propagation into surrounding tissue.



Make sure that NaCl is used as an irrigation medium.
Secure a continuous irrigation during the application.
Always use conductive lubricants to avoid damages of the urethra.
Avoid continuous activations.

Application areas

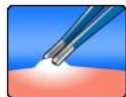
Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP).

Suitable instruments

- Resectoscope (bipolar)
- Vaporisation electrode

5.9. Bipolar coagulation modes

5.9.1. Standard forceps



This mode is used for arcless contact coagulation with forceps.

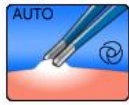
Application areas

Bipolar coagulation

Suitable instruments

- Bipolar forceps

5.9.2. Standard forceps AUTO



This mode is used for arcless contact coagulation with forceps. Activation starts automatically on contact with tissue. The adjustable delay time can be set under MENU – SYSTEM SETTINGS – AUTOSTART DELAY (see 5.10.2).



Setting the AUTOSTART mode can result in unintentional coagulations, e.g. when bipolar forceps are used for gripping while the AUTOSTART Mode is on.

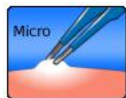
Application areas

Bipolar coagulation with AUTOSTART

Suitable instruments

- Bipolar forceps

5.9.3. Micro forceps



This mode is used for arcless contact coagulation with micro forceps. It enables extremely fine control of power output down to 0.1 W and precise work for tightly restricted bipolar contact coagulation.

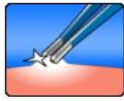
Application areas

Bipolar coagulation in pediatric surgery, neurosurgery, plastic surgery, etc.

Suitable instruments

- Bipolar forceps
- Micro forceps

5.9.4. Forceps forced



This mode is used for forced coagulation with forceps.

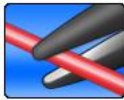
Application areas

Fast bipolar coagulation

Suitable instruments

- Bipolar forceps

5.9.5. LIGATION (optional)



This mode is used for the permanent sealing of veins, arteries and tissue bundles. Conventional instruments cannot be used in this mode. The output power is preconfigured and automatically regulated.

Application areas

Vessel sealing open and laparoscopic

Suitable instruments

- TissueSeal®
- TissueSeal® PLUS
- NightKNIFE®
- LIGATOR®
- ERGO 310D
- ERGO 315R



This function is available if the device has the option LIGATION (900-396).

5.9.6. TissueSeal PLUS (optional)



This mode is used for the permanent sealing of veins, arteries and tissue bundles with TissueSeal PLUS® for open surgical applications. Conventional instruments cannot be used in this mode. The output power is preconfigured and automatically regulated.

Application areas

Vessel sealing in open surgery

Suitable instrument

- TissueSeal PLUS®



This function is available if the device has the option LIGATION (900-396).

5.9.7. Bipolar scissors



This mode is used with bipolar scissors. It can be used for coagulation before or during cutting, point coagulation, coagulation of cuts and surface coagulation.

Application areas

Preparation, coagulation and cutting of tissue

Suitable instruments

- Bipolar scissors



Bipolar scissors should only be operated with the current type bipolar scissors cutting or bipolar scissors coagulation.

5.9.8. Laparoscopy



This mode is used for coagulation in combination with bipolar laparoscopic instruments.

Application areas

Laparoscopic coagulation

Suitable instruments

- Bipolar laparoscopic instruments

5.9.9. Laparoscopy Micro



This mode is used for coagulation in combination with fine bipolar laparoscopic instruments.

Application areas

Laparoscopic coagulation

Suitable instruments

- Fine bipolar laparoscopic instruments

5.9.10. Bipolar resection (optional)



This mode is used for bipolar blood coagulation in gynaecology and in urology for resection under conductive rinsing liquid (saline solution).



Be sure to use NaCl as the rinsing liquid.
 Perform continuous rinsing during the application.
 Use only conductive gel to avoid damage to the urinary tubes.
 Avoid continuous activation.

Application areas

Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP)

Suitable instruments

- Resectoscope
- Resection sling
- Rollerblade electrode



This function is available if the device has the option Bipolar Resection (900-395).



Make sure that the instrument has contact with the tissue while activating bipolar coagulation to avoid an unintended heating of the irrigation fluid.

5.9.11. Vaporisation (optional)



This mode is used for bipolar blood coagulation in gynaecology and in urology for vaporisation.



Be sure to use NaCl as the rinsing liquid.
Perform continuous rinsing during the application.
Use only conductive gel to avoid damage to the urinary tubes.
Avoid continuous activation.

Application areas

Hysteroscopy, transurethral prostate resection (TUR-P), surgical treatment of bladder tumors (TUR-B), vaporization of prostate tissue (TUR-VAP)

Suitable instruments

- Resectoscope
- Rollerblade electrode
- Vaporisation electrode

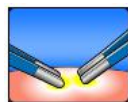


Make sure that the instrument has contact with the tissue while activating bipolar coagulation to avoid an unintended heating of the irrigation fluid.



This function is available if the device has the option Bipolar Resection (900-395).

5.9.12. Bipolar SimCoag (optional)



This mode is used for coagulation when using two bipolar instruments, e.g. forceps. The power is individually selectable for each instrument without any loss in power output during simultaneous activation.

The power can be set in steps of 5 watt.

Application areas

Simultaneous coagulation and preparation with two bipolar instruments in general surgery, vascular surgery, plastic surgery, traumatology, Neuro surgery and Orthopedics.

Suitable instruments

- Bipolar forceps
- Bipolar scissors



This function is available if the device has the option Bipolar SimCoag (900-399).

5.10. Menu dialogs



The menu dialogs specify the settings of basic parameters, such as the user interface language and audio, display and memory options.

5.10.1. Overview

The following menu dialogs are available:

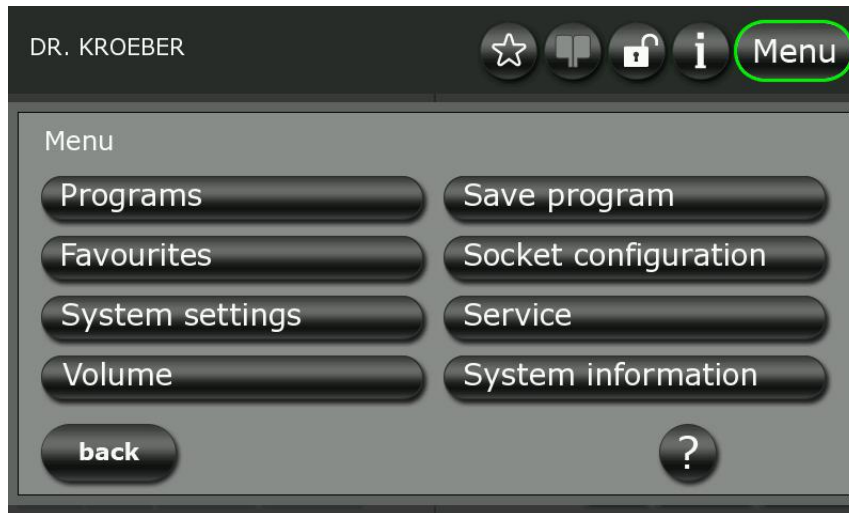


Figure 5-19: Menu dialogs

Selecting a dialog

Press the button of the desired dialog to launch the program.

Exiting a dialog

Press the "back" button to return to the main screen.

5.10.2. "System Settings" dialog

The following parameters can be configured in the "System Settings" dialog:

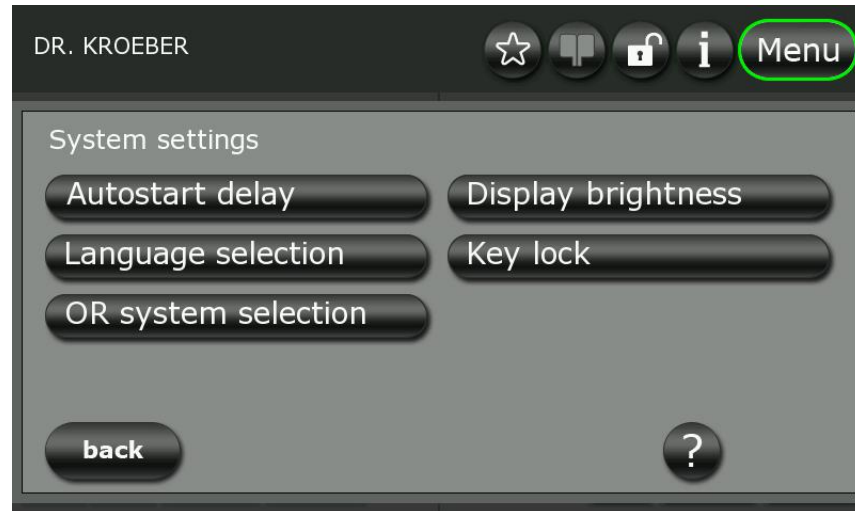


Figure 5-20: "System settings" dialog

The following languages are selectable in „language selection“:

German, English, French, Italian, Spanish, Russian, Polish, Turkish, Japanese, Korean, Thai, Indonesian, Chinese, Portuguese, Czech, Arabic, Hungarian, Danish, Finnish, Vietnamese, Swedish, Dutch, Bulgarian, Serbian, Romanian, Slovakian and Kazakh.

Under "Key lock" you can disable automatic screen lock or set its duration. The duration can be set from 30 seconds to 5 minutes.

A link to an optional OP system can be made under "OR system selection".

5.10.3. "Volume" dialog

Use the "Volume" dialog to set the volume of the individual acoustic signals.

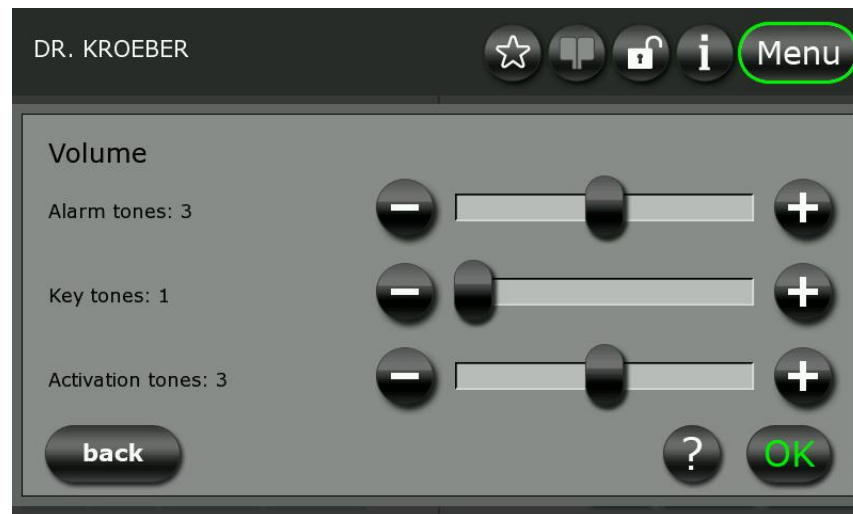


Figure 5-21: "Sound Level" dialog

Incremental setting

- ▶ Press the "+" and "-" buttons.

Fast setting

- ▶ Move the slider in the desired direction.



The volume of the activation signal should be increased as necessary for use in relatively noisy surroundings. The alarm tones have a minimum volume and limited changeability.

Mode	Category	Frequency (Hz)	Signal type
Monopolar Cut	Activation tones	635	Continuous sound
Monopolar Coag	Activation tones	475	Continuous sound
Bipolar Cut	Activation tones	565	Continuous sound
Bipolar Coag	Activation tones	505	Continuous sound
Sim Coag	Activation tones	755	Continuous sound
LIGATION end	Activation tones	-	Alternating sound
Foot switch changeover	Alarm tones	-	Signal tone
ZAP Mode	Alarm tones	-	Signal tone
Error	Alarm tones	-	Signal tone
Warning	Alarm tones	-	Signal tone
Note	Alarm tones	-	Signal tone

5.10.4. "Service" dialog

After entering a password, you can use the "Service" dialog to access additional options, such as resetting the device to the factory default configuration or viewing the instructions of use.

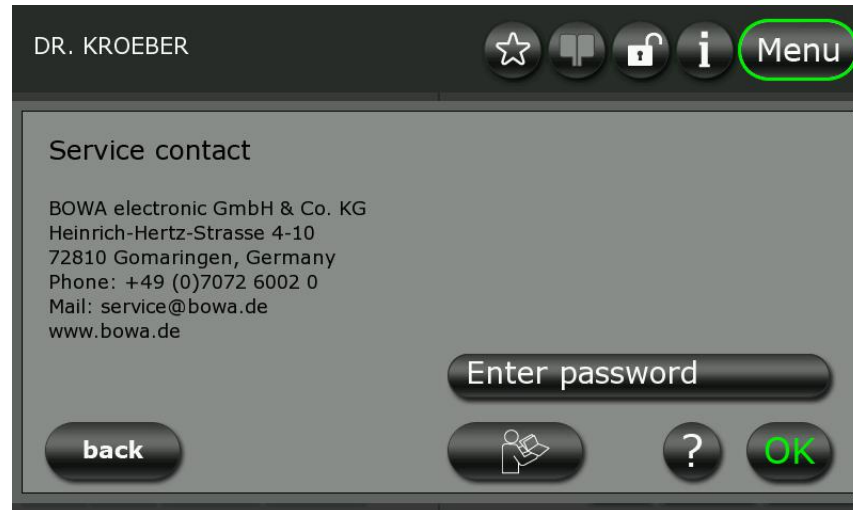


Figure 5-22: "Service" dialog

Opening the operating instructions:

1. Press the "Operating instructions" button.
- ↳ The operating instructions are displayed chapter for chapter.
2. Use the arrow buttons to select the desired chapter.
3. Press "OK" to open the selected chapter.
Use the arrow buttons to open the individual pages of the chapter.
4. Press "back" to return to the chapter overview.

With the password **001224** you enter the service level 1.

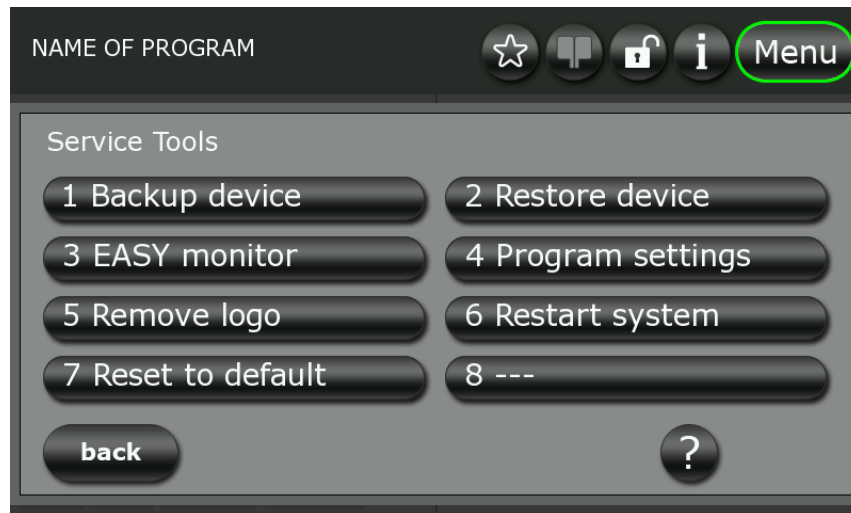


Figure 5-23: "Service Tools" dialog

Saving device settings

With the function "Backup device" device settings can be saved on the BOWA USB Stick (REF 900-402). This includes all stored programs and system settings.

Transferring device settings

Use "Restore device" to transfer saved device settings from a BOWA USB Stick (REF 900-402) to the ARC 400 unit.

Program settings

The "Program settings" function can be used to configure permissions for saving, deleting and editing programs.

Deleting the startup screen

In the service menu, the stored startup screen can be deleted using "Remove logo".

Add logo

See 5.4.9.

Resetting to factory settings

The "Reset to default" function allows you to reset all settings and programs to factory settings.

Save logfiles

This function can be used to save data on a BOWA-approved USB stick. This data can be used for a system analysis and can be sent by email to service@bowa.de, for example.

5.10.5. "System information" dialog

The "System information" dialog displays various System parameters such as version, serial number, TSI date for ARC 400 and if applicable ARC PLUS, as well as options.

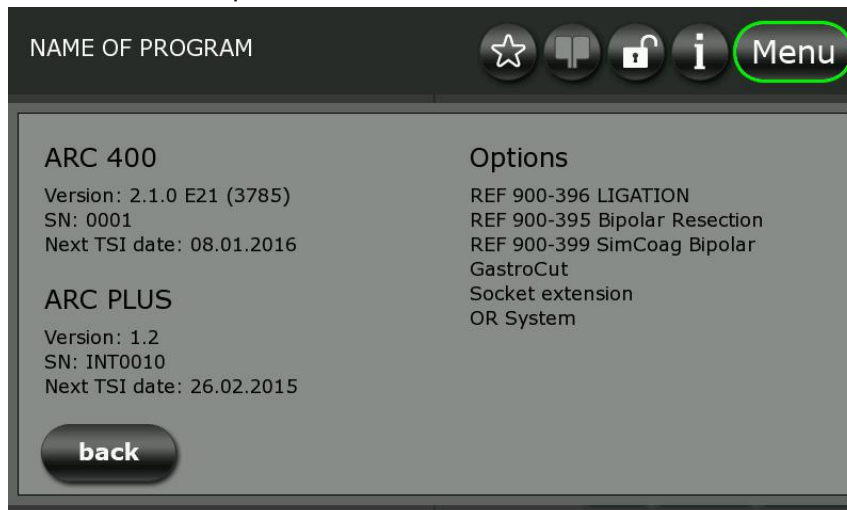


Figure 5-24: "System information" dialog

Moreover, the software version and the next TSI date is displayed, see chapter Safety inspection, page 107.

5.10.6. "Select program" dialog

1. Use the "Select program" dialog to select programs from a list and to add them to the favourites.
- or -
Fast settings of this menu are possible by tapping on the present program name in the main screen.
2. For the selection of a program, tap on the desired program name.
3. The horizontal navigation is possible using the arrows. The programs are always arranged alphabetically in the right column.
4. Use the star symbols at the bottom of the screen to assign programs to the Favourites list. The green arrow is for adding programs to the favourites, and the red arrow is for removing them.
5. The assignment to the favourites is possible using the star button in the lower area of the screen.
6. Press "OK" to load the selected program.
- or -
To return to the main screen click on "back".

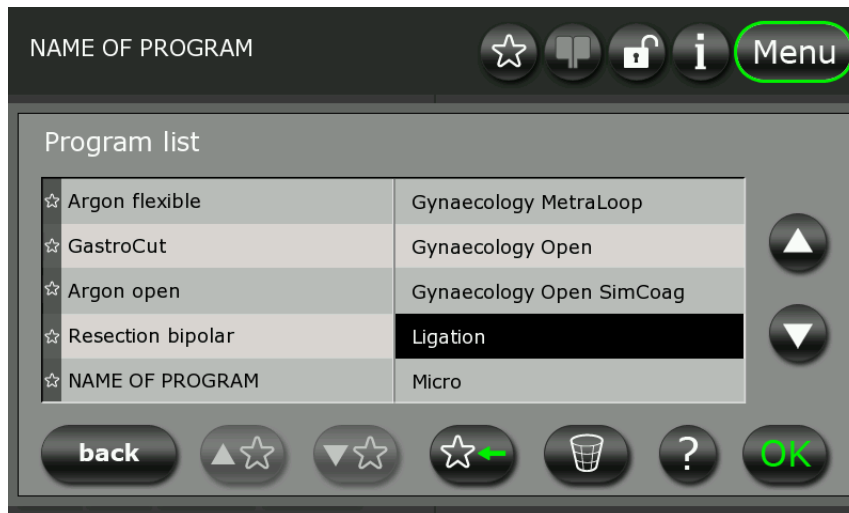


Figure 5-25: "Select program" dialog



Up to 300 programs can be put on the favourites list.

Saved programs can be deleted under "Program".

1. In the program list, select the program to be deleted by touching the program name.
You can also navigate horizontally with the arrows.
2. Touch the "Wastebin" symbol to permanently delete the selected program.
 - ↳ The selected program is deleted after you confirm this in a confirmation prompt.
 - ↳ The default program cannot be deleted.

5.10.7. "Favourites" dialog

Use the "Favourites" dialog to select previously defined favourite programs. A fast selection of the favourites is possible using the star button in the main screen.

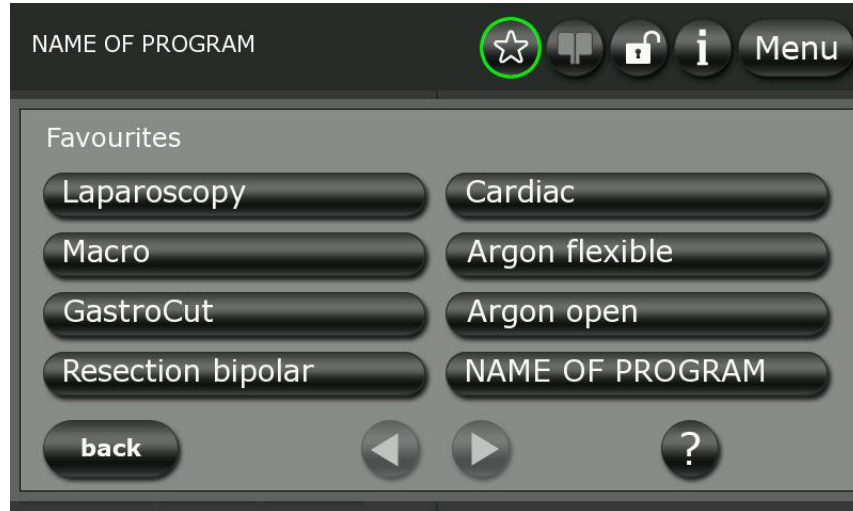


Figure 5-26: "Favourites" dialog

Use the arrow buttons at the bottom of the screen to navigate to the next page of the Favourites list. Confirm with "OK" to accept the selection. To return to the main screen click on "back".

5.10.8. "Save Program" dialog

Use the "Save Program" dialog to save the current program settings under the same name or a different name.



Figure 5-27: "Save program" dialog

With a keypad program names can be created. Several symbols, capital or small letters or numbers are selection options.

You can use the "Enter" button to assign two-line program names.

Confirm with "OK" to accept the selection.

To return to the main screen click on "back".

5.10.9. Socket extension

The bottom bipolar socket can be extended. This allows a total of three bipolar instruments to be connected.



With socket extension active, it is only possible to work with two bipolar ERBE plugs on the bottom bipolar socket. Autostart mode is not available on the extended top socket.

☞ Select "Socket configuration" to access the socket extension screen.

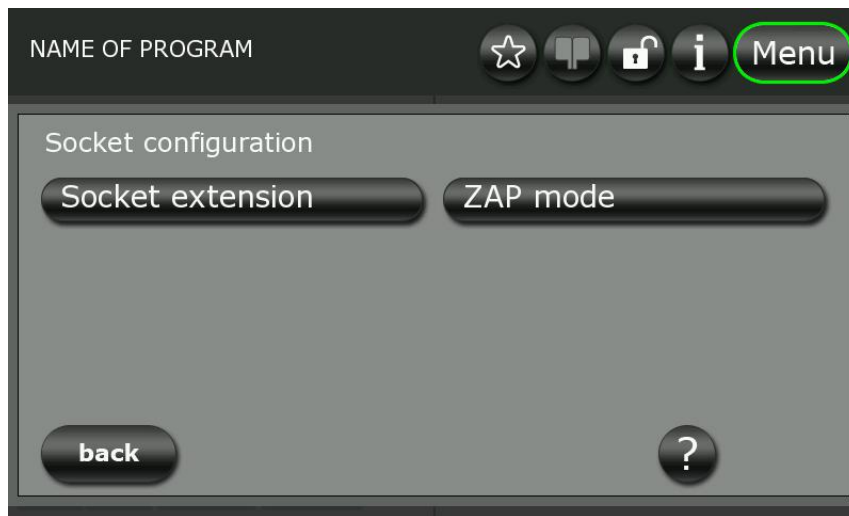


Bild 5-28: Menu "Socket configuration"

☞ Select socket extension for the bottom bipolar socket by touching the right-hand selection area next to the two individual plugs.

Press "OK" to confirm your selection.
Press "Back" to return to the main screen.

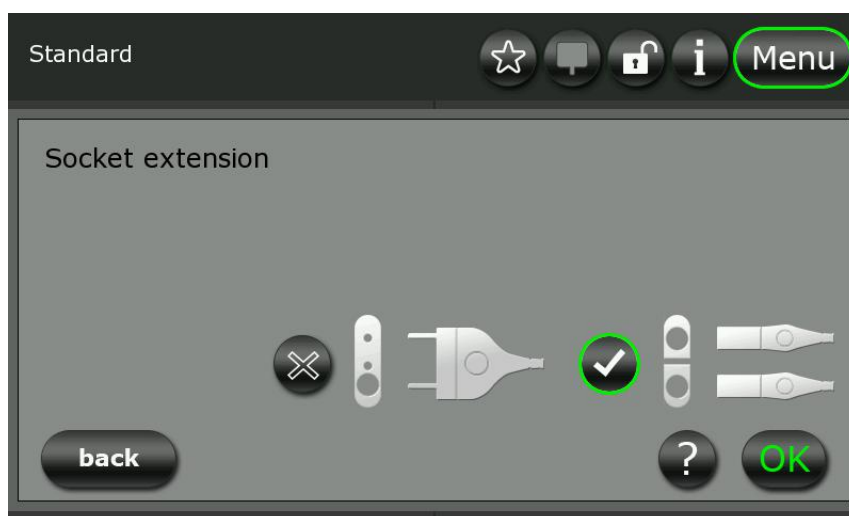


Bild 5-29: Menu "Socket extension"

- You now have three bipolar ports available.
- A socket extension indicator is displayed next to the “Effect” key.

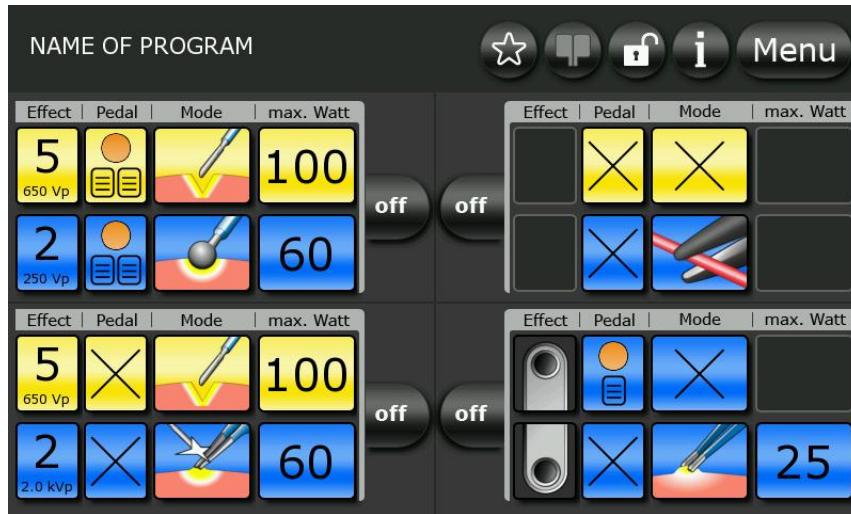


Bild 5-30: Dual operator interface for bottom socket.

5.10.10. ZAP Mode

You can use Zap Mode to switch between two predefined settings for the same instrument.

1. Select Zap Mode on the “Socket configuration” screen.
2. Enable or disable switching for an individual socket by touching the check mark next to the socket.



Bild 5-31: Menu “ZAP Mode”

The check mark is filled in when Zap Mode is enabled.

Press “OK” to confirm your selection.

Press “Back” to return to the main screen.

On the main screen, active Zap Mode is indicated by an additional button.

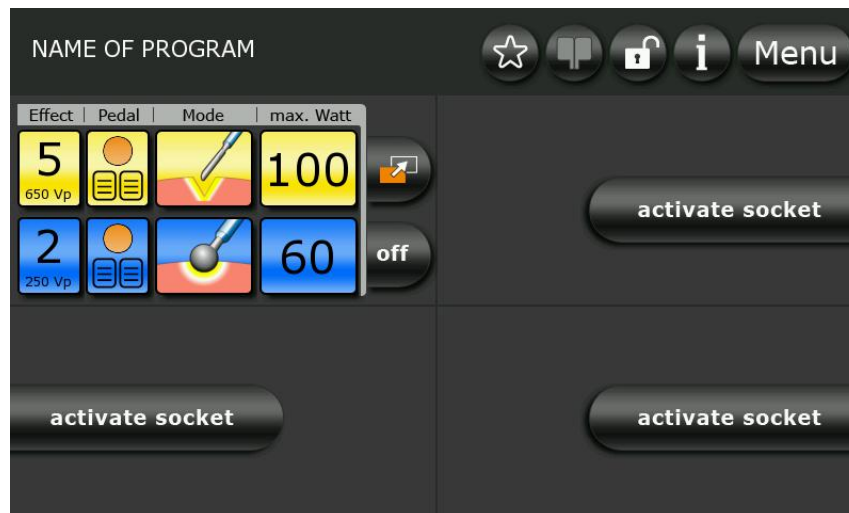


Bild 5-32: Top monopolar socket in Zap Mode

To configure the second socket setting, touch the Zap Mode symbol above the “Off” button.

The colour of the symbol changes from orange to white and the current settings are copied.

Now you can edit the parameters for the second socket setting as desired.

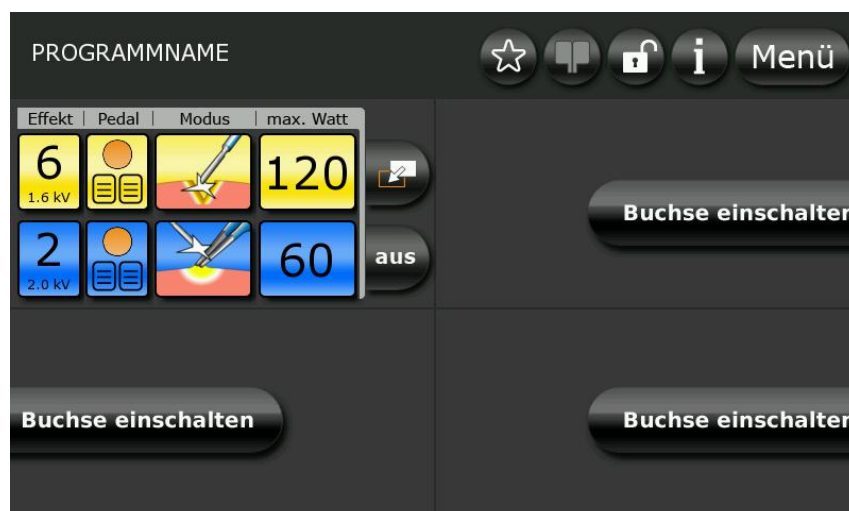


Bild 5-33: Top monopolar socket in Zap Mode Change

Touching the Zap Mode symbol again takes you back to the previous socket setting.

In addition to the described option for switching the setting on the main screen, the setting can be switched with the handle or the foot switch.

Switching with the handle

To switch the setting with the monopolar handle, press the two buttons for cutting and coagulation at the same time and hold them pressed for more than one second.

Switching with the foot switch

You can also switch the levels with the orange button on the foot switch. For this purpose, select the Zap Mode symbol below the “Pedal” icon.

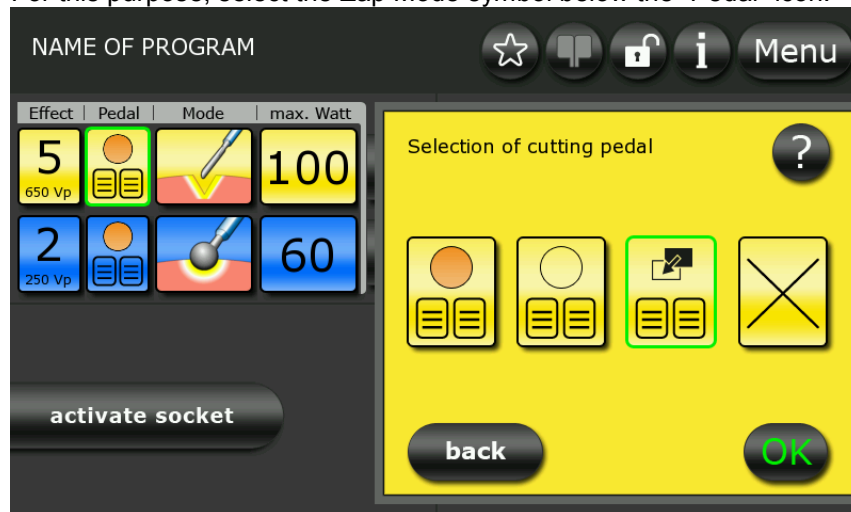


Bild 5-34: Zap Mode foot switch selection for cutting

Now the Zap Mode symbol appears on the main screen below the “Pedal” icon.

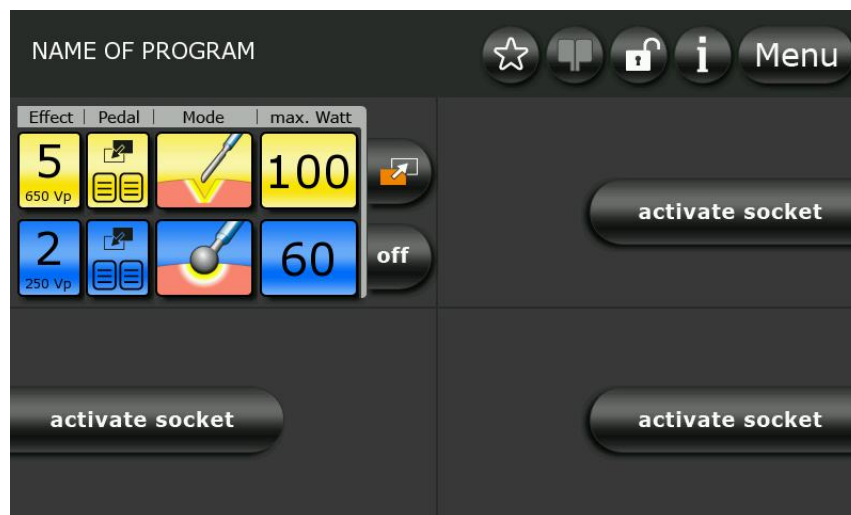


Bild 5-35: ZAP Mode foot switch

You can switch between the two socket settings by pressing the orange button on the foot switch.



The orange button on the foot switch is now dedicated to Zap Mode switching.

5.10.11. "System messages" dialog

In the "System messages" dialog, it is possible to open the saved system messages which have occurred since switching on the HF device.

These messages are not saved when switching off the HF device.

Opening saved system messages:

1. Select a system message.
2. The selected system message is displayed again with "?".
3. Press "OK" to return to the overview.

Opening the instructions of use:

1. Press the "instructions of use" button.
- ↳ The instructions of use are displayed chapter for chapter
2. Use the arrow buttons to select the desired chapter.
3. Press "OK" to open the selected chapter.

Use the arrow buttons to open the individual pages of the chapter.

4. Press "back" to return to the chapter overview.

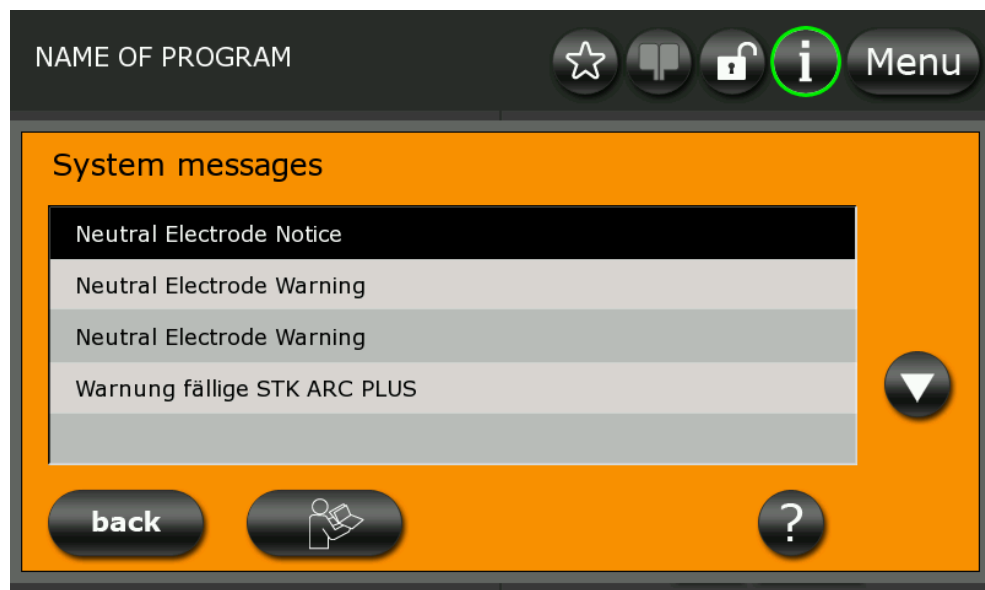


Figure 5-36: "System messages" dialog

5.10.12. "Argon" dialog

In case of the selection of an argon mode and a successful connection to ARC PLUS, this dialog is selectable in the status bar.

The "Argon" dialog enables the selection of argon flow rates for cutting and coagulation, as well as the selection of argon bottles and the display of filling levels.

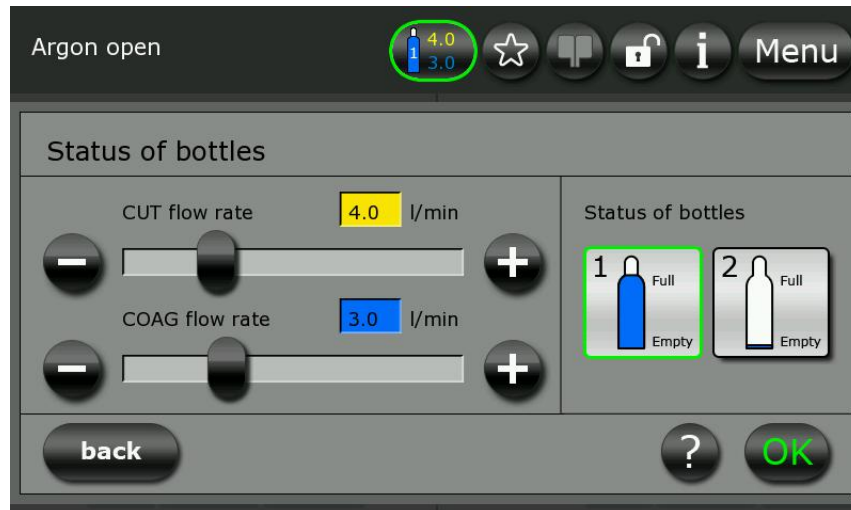


Figure 5-37: "Argon" dialog

1. Use the "+" and "-" buttons to adjust the argon flow rate for cutting (Cut) or coagulation (Coag).
- or -
Use the slider to set the flow rate.
2. In case of two connected argon bottles use the buttons for output "1" or "2" to select the desired gas source.

Pressure reducers with electronic pressure sensor enable the display of exact filling levels of argon bottles.

3. Press the "?" button for more information on this selection.
4. Confirm your selection by pressing the "OK" button.
- or -
Press the "Back" button to return to the main screen without changing the selection.



Default settings for argon flow rates according to the different modes are selected automatically:

Argon open:
CUT flow rate: 4.0 l/min
COAG flow rate: 3.0 l/min

Argon flexible:
COAG flow rate: 0.4 l/min

5.11. Basic programs

The following basic programs are provided with the full version of ARC 400 (incl. the resection bipolar option and the LIGATION option):

- 3 Bipolar
- Argon flexible
- Argon
- Cardiac
- GastroCut
- Laparoscopy
- Ligation
- Macro
- Micro
- Open Surgery
- Resection bipolar
- Resection monopolar
- SimCoag
- SimCoag bipolar
- Standard
- Open surgery ZAP Mode



Figure 5-38: Basic program "3 Bipolar"



Figure 5-39: Basic program "Argon flexible"

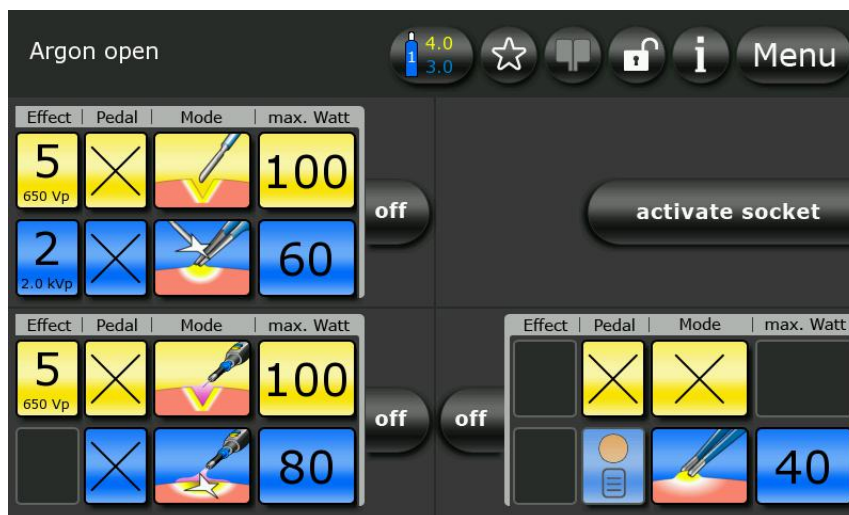


Figure 5-40: Basic program "Argon open"

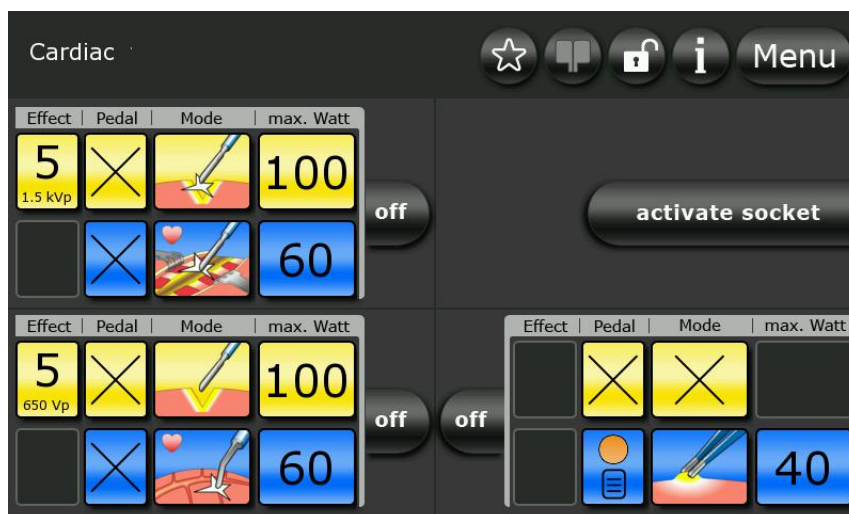


Figure 5-41: Basic program "Cardiac"



Figure 5-42: Basic program "GastroCut"



Figure 5-43: Basic program "Laparoscopy"

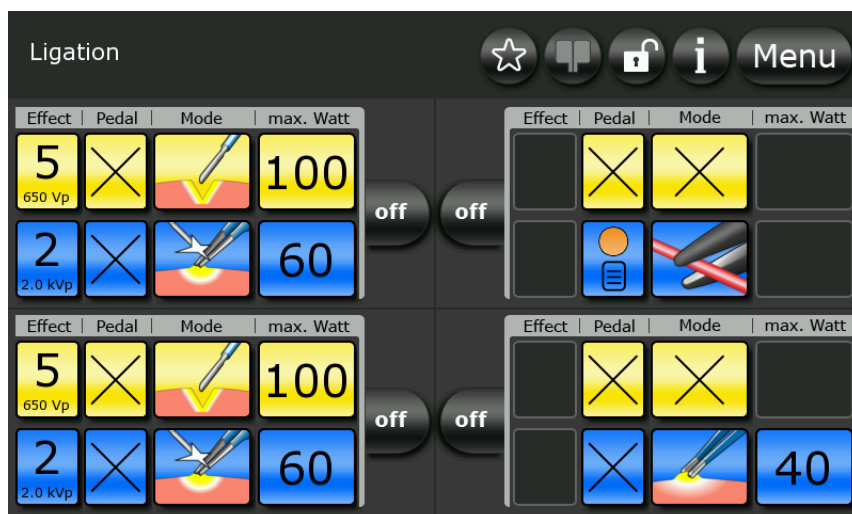


Figure 5-44: Basic program "Ligation"

The LIGATION program is only available when the LIGATION option is present.

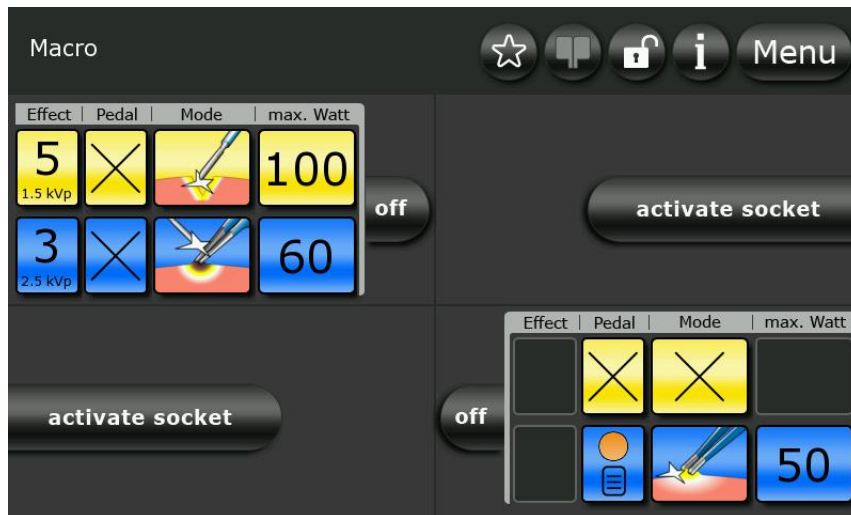


Figure 5-45: Basic program "Macro"



Figure 5-46: Basic program "Micro"

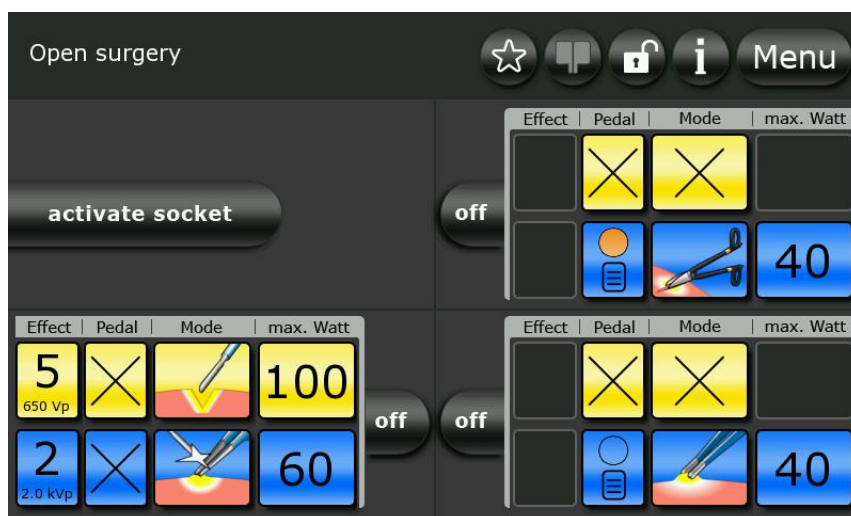


Figure 5-47: Basic program "Open Surgery"

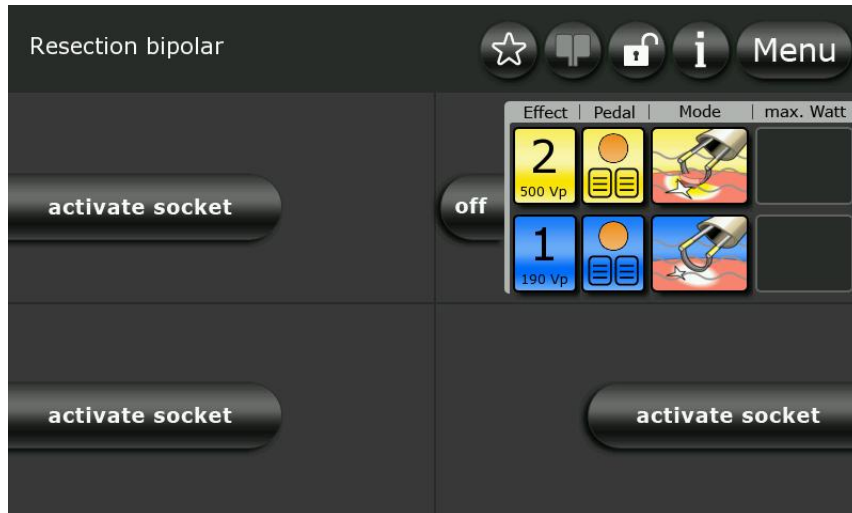


Figure 5-48: Basic program "Resection bipolar"

This program is only available with the resection bipolar option.

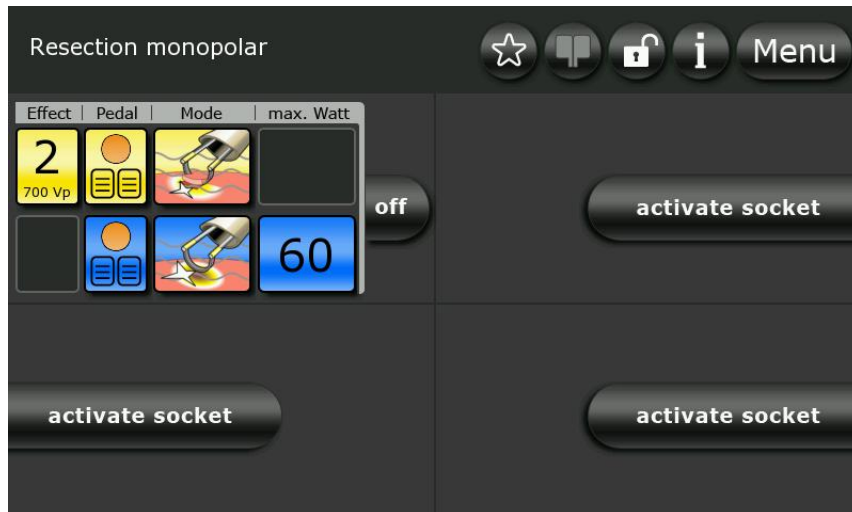


Figure 5-49: Basic program "Resection monopolar"

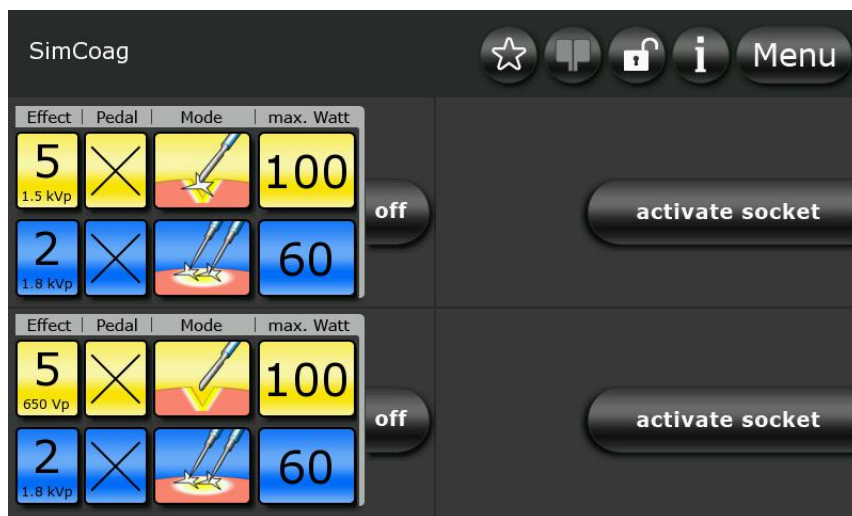


Figure 5-50: Basic program "SimCoag"

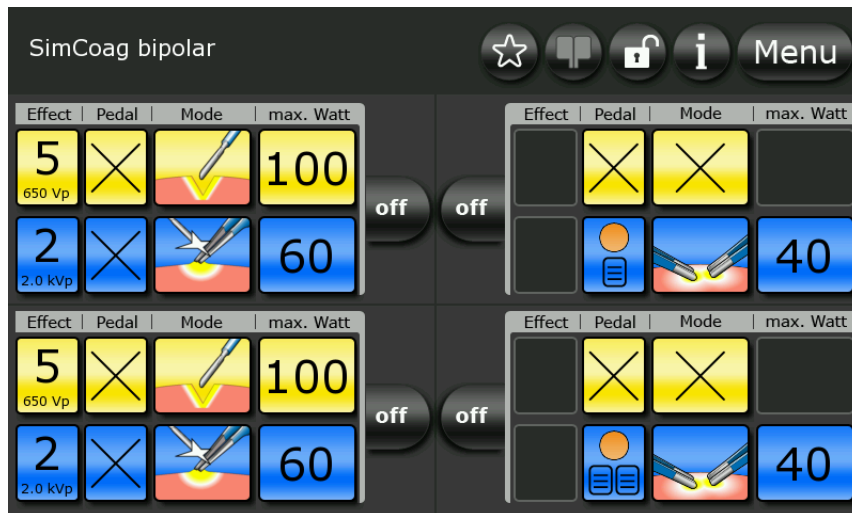


Figure 5-51: Basic program "SimCoag bipolar"

This program is only available with the SimCoag bipolar option.

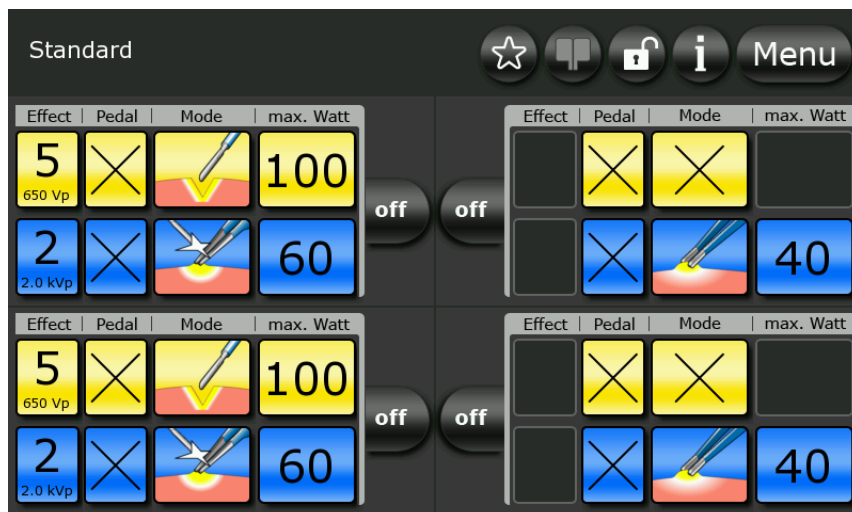


Figure 5-52: Basic program "Standard"

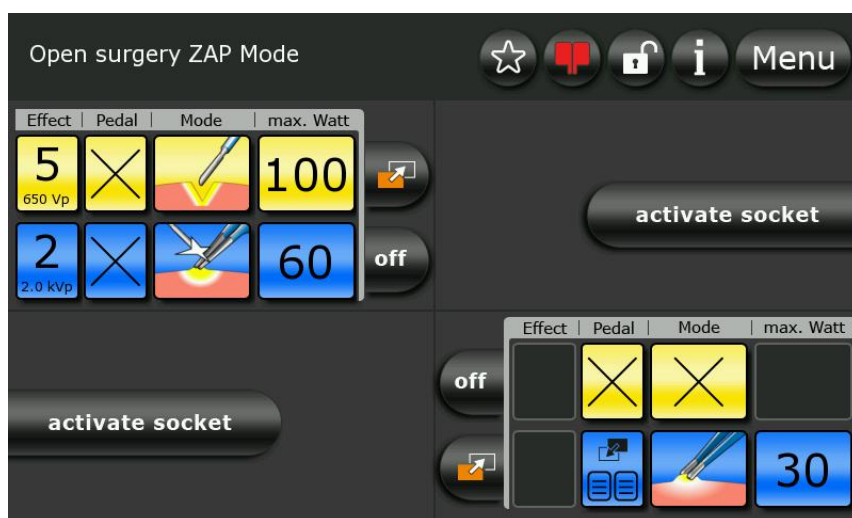


Figure 5-53: Basic program "Open surgery ZAP Mode"

6. Detecting and correcting faults

Two types of faults can occur:

- system faults
- EASY monitoring faults

6.1. System information

A warning message appears on the display when a system fault occurs.

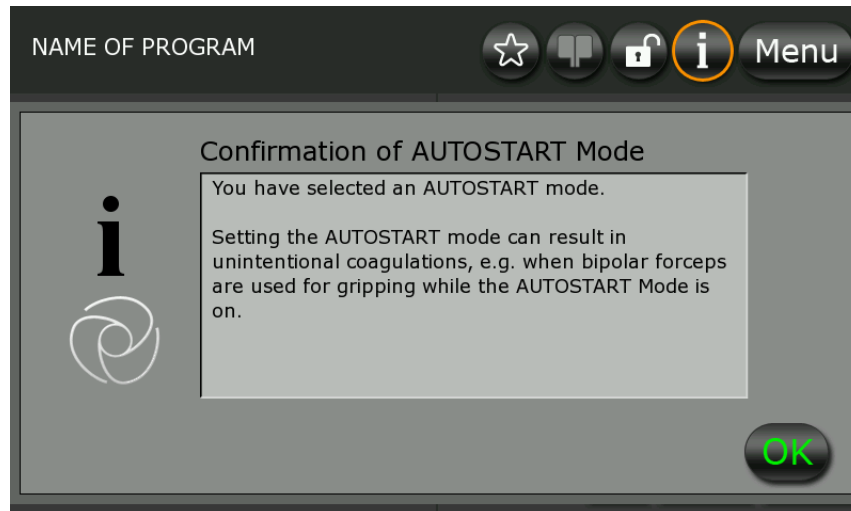


Figure 6-1: Confirmation of AUTOSTART Mode

System information has three different categories:

- Notice (grey screen)
- Warning (orange screen)
- Error (red screen)

Notices are shown for five seconds on the display. Warnings and errors are shown for ten seconds.

While an error is present, activations are prohibited.

The message is available using the orange marked „i“ in the system bar.

The following table describes the cause of the fault and the appropriate corrective action.

Heading	Fault message
Confirmation of AUTOSTART Mode	You have selected an AUTOSTART mode. Setting the AUTOSTART mode can result in unintentional coagulations, e.g. when bipolar forceps are used for gripping while the AUTOSTART Mode is on.
AUTOSTART Fault	The instrument is in contact with tissue. AUTOSTART cannot be selected when the instrument is in contact with tissue. Open up the instrument.
TSI Warning	The annual Technical Safety Inspection (TSI) is due.
Neutral Electrode Fault	No neutral electrode connected. No neutral electrode connected. Connect a neutral electrode.
Neutral Electrode Fault	Wrong neutral electrode connected. The selection does not match the neutral electrode connected. Connect the neutral electrode which matches the selected mode, or change the mode to match the neutral electrode.
Neutral Electrode Fault	Poor contact with the patient. The resistance between the neutral electrode and the patient is too high. Establish better contact of the neutral electrode.
Neutral Electrode Warning	Poor contact with the patient. The contact resistance between the neutral electrode and the patient is increasing. Establish better contact of the neutral electrode.
Neutral Electrode Fault	No cable for neutral electrode connected. No cable for neutral electrode connected. Connect a cable for neutral electrodes.
Neutral Electrode Notice	No cable for neutral electrode connected. The cable for neutral electrode has been removed. Monopolar activation is not possible.
Mode Fault	No mode selected. No mode was selected for this type of activation. Select the desired mode or change the foot switch assignment.
Mode Fault	This mode is not allowed for baby neutral electrodes. Use split neutral electrodes with a large conductive surface for this mode.
Mode Fault	This mode is not allowed for this socket. The current mode remains active. Choose another socket for this mode.
Foot Switch Fault	No compatible foot switch connected. The connected foot switch is not compatible with this device. Connect a compatible foot switch with an orange button.
Foot Switch Fault	Foot switch not assigned to a socket. The foot switch has not been assigned to a socket yet. Assign a socket to the foot switch using the "Pedal" button.

Heading	Fault message
Foot Switch Fault	Fault on foot switch connection. Check the foot switch. If this message appears again, please contact the Technical Support. Contact: MENU - SERVICE.
Finger Switch Fault	Fault on finger switch connection. Check the handle and the connection cable. Please replace them if damaged. If this message appears again please contact the Technical Support. Contact: MENU - SERVICE.
Temperature Warning	The temperature of the device is higher than normal. The temperature of the device is elevated. This leads to a reduction of the maximum power.
Limitation of Continuous Activation	The maximum activation time has been exceeded. Please only activate the generator in short intervals, in order to avoid harming the patient and damaging the connected instruments or the generator.
Activation Fault	While switching on the device, there is an activation by foot switch, finger switch or AUTOSTART. Check the handles or foot switches for malfunctions. Disconnect the handles / foot switches from the device. If the error persists, please contact the Technical Support. Contact: MENU - SERVICE.
Activation Fault	There is an activation while connecting the foot switch or finger switch. Check the handles or foot switches for malfunctions. Disconnect the handles / foot switch from the device. If the error persists, please contact the Technical Support. Contact: MENU - SERVICE.
Activation Fault	There is no instrument connected on the activated socket. Connect an instrument on the designated socket.
Activation Warning	The mode for safety inspections is active. Activation is not possible. Quit this mode before activating again.
Bipolar Resection Warning	Use a BOWA COMFORT resection cable. Be sure to use NaCl as the rinsing liquid. Perform continuous rinsing during the application. Use only conductive gel to avoid damage to the urinary tubes. Avoid continuous activation.
GastroCut Warning	Polypectomy snare not in contact with tissue, or check connection cable at snare or generator. Please apply the snare and reactivate. First of all establish contact between tissue and polypectomy snare, or check the connection cable at the snare or the generator. Then activate with the yellow foot pedal.
LIGATION Notice	Grasp tissue again.

Heading	Fault message
LIGATION Warning	<p>There is a short-circuit in the area of the sealing instrument. Possible remedies: Clean the inner surface of the jaw. The jaw and sealing area must be free of foreign objects such as clamps and tissue residues. Check the instrument and cable for damage. Check the connection to the generator. Follow the instructions for use for the instrument.</p>
LIGATION Warning	<p>The sealing instrument is not in contact with tissue. Possible remedies: Clean the inner surface of the jaw. The jaw and sealing area must be free of foreign objects such as clamps and tissue residues. Check the instrument and cable for damage. Check the connection to the generator. Follow the instructions for use for the instrument.</p>
ARC PLUS Fault	<p>Connect the argon device to the generator and switch it on. The argon device is connected to the generator by fibre optic cables. The active argon device is automatically connected via the generator when an argon mode is activated.</p>
ARC PLUS 5100 Internal Fault	<p>ARC PLUS not operational. Connect an operational argon device to the generator. If the warning message persists, please contact the Technical Support. Contact: MENU - SERVICE.</p>
ARC PLUS Fault	<p>Please check if the argon bottles are connected and open. Empty bottles should be replaced. Subsequently restart ARC PLUS by activating the flashing "Purge" button. You can connect two argon bottles. A change to the replacement bottle occurs automatically.</p>
ARC PLUS Fault	<p>The argon inlet pressure is too high. Max. inlet pressure: <4.5bar Connect a source of argon gas in the appropriate pressure range. Subsequently restart ARC PLUS by activating the flashing "Purge" button.</p>
ARC PLUS Fault	<p>The argon inlet pressure has exceeded the permissible limits. Inlet pressure range: 2 - 4.5bar Connect a source of argon gas in the appropriate pressure range. Subsequently restart ARC PLUS by activating the flashing "Purge" button.</p>
ARC PLUS Warning	<p>Mixed operation of argon bottles with and without an electric bottle pressure gauge is not recommended Connect two identical pressure reducers.</p>
ARC PLUS Warning	<p>Check if the instrument is free of adhesions, and purge it with argon. If repeated purging does not solve the problem, the instrument and cable must be replaced.</p>

Heading	Fault message
ARC PLUS Fault	Check if the argon bottles are connected and open. Empty bottles should be replaced. You can connect two argon bottles. A change to the replacement bottle occurs automatically.
ARC PLUS Warning	The filling level of the argon bottle is low. Please make sure that a replacement is available. You can connect two argon bottles. The unit shifts automatically to the second bottle.
ARC PLUS Fault	The argon bottle is empty. Connect a replacement bottle to enable activation. You can connect two argon bottles. The unit shifts automatically to the second bottle
ARC PLUS Notice	The argon bottle is empty. The unit has shifted automatically to the replacement bottle. Please make sure that a replacement is available.
ARC PLUS Notice	The argon bottle is empty. The unit shifts automatically to the replacement bottle. Please make sure that a replacement is available.
ARC PLUS Fault	Please check if the argon bottles are connected and open. Empty bottles should be replaced. Subsequently restart ARC PLUS by activating the flashing "Purge" button.
TSI ARC PLUS Warning	The annual Technical Safety Inspection (TSI) for ARC PLUS is due.
Plug'n Cut COMFORT Notice	The lifetime of the instrument is ending soon. Please order a replacement in good time. Any use of the instrument beyond its lifetime is not covered by warranty. Please contact your BOWA dealer in good time to purchase a new instrument.
Plug'n Cut COMFORT Warning	The maximum lifetime of the instrument has been reached. Any further use is not covered by warranty. The maximum service lifetime of the instruments must not be exceeded, in order to guarantee safe usage. Any further use is at the user's risk.
Plug'n Cut COMFORT Warning	A software update is necessary to use Plug'n Cut COMFORT with this instrument. Only carry out manual settings at this instrument. Please contact the Technical Support. Contact: MENU - SERVICE.
Plug'n Cut COMFORT Warning	Unable to load the preference parameters of the COMFORT instrument. Configure the instrument settings manually. Please contact the Technical Support. Contact: MENU - SERVICE.

Heading	Fault message
Dr. Dongle Warning	A fault occurred while loading the program. No changes have been made. If the warning message persists, please contact the Technical Support. Contact: MENU - SERVICE.
Dr. Dongle Warning	The selected program does not have any parameters. Put a valid program in this memory or select a different memory location.
Internal Error XXXX (z.B. mit XXXX = 4183)	If this message appears again, please contact the Technical Support. Contact: MENU - SERVICE.

Internal Errors have a number next to the description.
Please advise the Technical Service of this number.

6.2. Fault indications for EASY monitoring

Fault indications are displayed in three stages (green, yellow and red) when problems occur.

When working with a split neutral electrode, the following faults may occur:

EASY monitoring	Cause	Indication	Corrective measures
Flashes yellow	Significant increase in resistance Depending on the indication, there may be heating under the neutral electrode	–	Stopping the application is not necessary. ▶ Check the proper application of the neutral electrode.
Switches from green to continuous red	A significant problem occurred when the monopolar current was activated	An acoustic signal sounds. A warning message appears on the display <ul style="list-style-type: none"> • Notice (grey screen) • Warning (orange screen) • Error (red screen) 	▶ Check the neutral electrode and neutral electrode cable (see Section EASY neutral electrode monitoring (EASY monitoring), page 35). ▶ Check the neutral electrode cable for proper connection and external damage.
	Loosened electrode	An acoustic signal sounds. A warning message appears on the display <ul style="list-style-type: none"> • Notice (grey screen) • Warning (orange screen) • Error (red screen) 	▶ Reattach the neutral electrode. If the fault persists, replace the neutral electrode.

7. Preparation

7.1. Preparation of the accessories

- ▶ Prepare the accessories (e.g. surgical handles, instruments, active electrodes, neutral electrodes and cables) as described in the corresponding operating manuals.
- ▶ Check the accessories before and after use for damage and to ensure that they are working properly.

7.2. Disinfection and cleaning



NOTE

Incorrect handling of the HF device can cause damage to the unit!
Never sterilize the ARC 400 device. Instead, clean or disinfect it.



WARNING

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.

1. Apply the cleaning agent and disinfectant.
BOWA recommends the use of cleaning and disinfection agents which are suitable for surface cleaning of medical devices made of plastic, metal and glass.
The manufacturer accepts no responsibility if other types of cleaning and disinfecting agents are used.
Follow the instructions provided by the manufacturer of the cleaning agent.
2. Wipe the agent off with a sponge moistened with clean water or with a cloth.
3. Dry the device using a clean, lint-free cloth.

8. Maintenance and repair

8.1. Maintenance



DANGER

Infection hazard!

- ▶ Carry out a surface disinfection and wrap the device in addition to the shipping packaging material before allowing the device to leave the hospital or office to avoid spreading germs and infections.

- ▶ Check the device, the device trolley and the accessories (e.g. foot switch, cable) after each use for damage or defects. In particular, make sure that the insulation is intact on all cables.
- ▶ Do not use any damaged device, damaged device trolley or damaged accessories.
- ▶ Replace defective accessories immediately.
- ▶ Have the safety inspection for the device performed once a year. Please consult and comply with the respective service instructions for additional technical information.

8.1.1. Safety inspection

Safety inspections must be performed once a year.

- ▶ The next safety inspection date of ARC 400 can be displayed in the dialog, see section 5.10.5 "System information" dialog, page 84.
- ↳ A warning message appears during system start-up if a safety inspection is due.
Press OK to confirm this message.



Any shorter safety inspection cycles specified in national regulations must be observed.

- ▶ The device and accessories may be inspected only by persons who have the required training, knowledge or experience and who can perform the inspection independently.
- ▶ With regard to the safety inspection, you must comply with the country-specific rules and regulations.

The tester documents the inspection results and measured values according to the printed test record in the service manual. If you do not have a copy of the service manual, please contact your dealer or one of the service addresses listed below.

In the case of severe deviations from the values of the service test record, or if the specified maximum values were exceeded:

- ▶ Send the HF device to the service center, see section Technical service, page 109.

8.2. Repairs



NOTE

You can damage the HF device by doing your own repairs and modifications of medical equipment!

- ▶ If a repair is necessary, have it done only by the service center specified below.
- ▶ Never carry out any repairs yourself.

BOWA is liable for safety, reliability and performance of the HF device under the following conditions:

- Full compliance with all instructions regarding the installation and proper use for the intended purpose contained in this operating manual was maintained.
- Changes, repairs, new settings and similar procedures were carried out only by persons authorized to do this work by BOWA.
- The electrical installations in the relevant room meet the local requirements and statutory provisions.



Fast and satisfactory repairs can only be guaranteed when all required data have been supplied in full.

The following information is required for returning the device:

- complete address
- model number
- serial number
- software version
- ▶ Describe the problem, the appropriate application and the accessories used.

– or –

- ▶ Describe the repairs to be made.

9. Storage

- ▶ If you store the HF device for longer than one year, pay specific attention to the indicators during automatic functional testing, see section Functional test, page 33.
- ▶ Clean the HF device thoroughly before you put it into storage.
- ▶ Store the HF device in a clean, dry place in accordance with the storage conditions.

Storage conditions:

- Temperature: -20 °C to +50 °C
- Relative humidity 0 to 90 %, non-condensing
- Atmospheric pressure: 500 to 1060 hPa

9.1. Technical service

Contact the following service center for maintenance and repair work:

BOWA-electronic GmbH & Co. KG

Heinrich-Hertz-Strasse 4–10

72810 Gomaringen, Germany

Phone +49 (0) 7072-6002-0

Fax +49 (0) 7072-6002-33

Email service@bowa.de

or visit our website:

www.bowa.de

10. Technical specifications

10.1. ARC 400 technical data (REF 900-400)

Insulation type / Classification	
EMC	IEC 60601-1-2
Level of protection provided by the housing	IP 21
Protection class according to EN 60601-1	I
Application component type according to EN 60601-1	CF
Standards compliance	IEC 60601-1: 2005, IEC 60601-1-2:2007, IEC 60601-2-2: 2009, ISO 14971: 2007 ISO 13485: 2003 + Cor.1 2009
Classification according to EC Directive 93/42/EEC	IIb

Power connection	220 V - 240 V	100 V - 127 V
Min. Power consumption	3 W / 40 VA	3 W / 40 VA
Min. Current consumption	200 mA	400 mA
Max. power consumption (at 400 W)	700 W / 1150 VA	700 W / 1150 VA
Max. current consumption (at 400 W)	5 A	10 A @ 100 V 8 A @ 127 V
Line fuses	2 x T 5 AH 250 V	2 x T 10 AH 250 V
Mains frequency	50 / 60 Hz	50 / 60 Hz
Terminal for potential equalization	√	√

Dimensions and weight	
Dimensions	430 x 180 x 475 mm
Net weight	12,5 kg
Packaging information /dimensions	Carton 685 x 497 x 280 mm
Gross weight	18 kg

Programs	
Number of programs in the device	300
Default programs, factory set	Yes
Individually programmable	Yes
Information shown on the display	Yes

Neutral electrode monitoring	
EASY (Electrode Application System)	Yes
Display indication of one-piece or split or Baby electrode	Main and neutral electrode menu
Contact resistance between individual sections of split neutral electrodes shown on display	Using color and contact indicator
Lead resistance shown on the display when a non-split neutral electrode is used	Yes
Maximum allowable resistance between the sections of a split electrode	300 Ω
Warning signal for hazardous conditions concerning neutral electrode	Visual, acoustic
Tones	Warning, activation, key, starting sound
Warning message on the display	Text message with further information


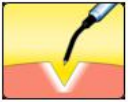

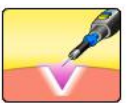



Safety features	
ISSys (Integrated Safety System)	Yes
Spark regulation	ARC CONTROL
Continuous monitoring of HF leakage current and fault indication	Text message with further information
Dosage monitoring with fault indication on the display	Yes
Continuous self-test	Yes
Continuous status indication on the display	Yes
Operating errors shown on the display	Text message with further information
System faults shown on the display	Text message with further information
Technical Safety Inspection (TSI)	Automatic memory function (optional)
Operating manual	Direct access in the display, additionally provided as hardcopy and USB-Stick incl. PDF

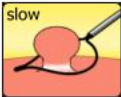
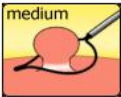
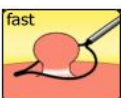



Documentation	
Data acquisition and storage in the device	System information
Documentation of fault states	Yes
Documentation of operating errors	Yes
Retrieval of system information via the display	Text message with further information

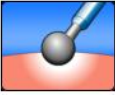

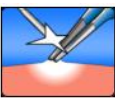

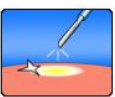

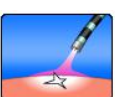
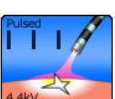

Communication	
Display	Capacitive touchscreen 9"
External interface for communication of HF generator and ARC PLUS	Light wire cables
USB interface for software updates	Yes
External PC interface for service support using BOWA software	CAN / UART

Service support	
Network port for service support	Yes
Service support by service programs integrated in the device	Yes
Service support via ISSys	Yes
Cooling	
Convection	Yes
Temperature-controlled fan	Yes
Duty factor	
Duty factor	Intermittent 10 s / 30 s (on / off)
Characteristics	
Max. MONOPOLAR power	400 W (at 200 Ω)
Max. BIPOLAR power	400 W (at 75 Ω)
Output frequency	350 kHz / 1 MHz
Monopolar sockets	2x (footswitch and finger switch)
Bipolar sockets	3x (3x footswitch and 2x finger switch)
Connection for footswitch	2x
AUTOSTART	Yes
Options	Bipolar Resection M098-900395, LIGATION M098-900396, Bipolar SimCoag M098-900399
Scope of delivery	Incl. Dr. Dongle, USB Stick, operating manual, mains cable, PE-line
RFID	
Transmitter frequency	13,56 MHz
Duty cycle	0-100%
Modulation scheme	AM
Antennas	Two internal antennas (antenna diversity – no simultaneous transmission on both antennas)
Number of channels	1
Max. RF output power	33dBm (<< 42 dB μ A/m at 10m)
Applied RF standards	ETSI EN 300330-1 V1.7.1 (2010-02) ETSI EN 300330-2 V1.5.1 (2010-02)
Compatibility	
Permitted combinations	ARC PLUS (900-001), footswitch (901-031, 901-032, 901-011)

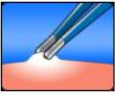
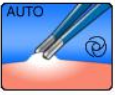
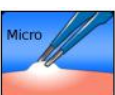
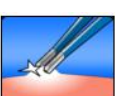



Conditions of operation, transport and storage	Operation	Transport and storage
Temperature	+10°C to +40°C	-20°C to +50°C
Relative humidity	30 to 75%, non-condensing	0 to 90%, non-condensing
Atmospheric pressure	700 to 1060 hPa	500 to 1060 hPa
Operating altitude (max.)	3000 m above sea level	

Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
Modes Monopolar Cutting												
	Standard	Yes	Yes	sinusoidal constant	1 2 3 4 5 6 7 8 9	1 W – 400 W	400 Vp 450 Vp 560 Vp 650 Vp 700 Vp 700 Vp 700 Vp 750 Vp	5	100	200 Ω	---	---
	Micro	Yes	yes	sinusoidal constant	1 2 3 4 5 6 7 8 9	1 W – 50 W	280 Vp 340 Vp 380 Vp 400 Vp 400 Vp 400 Vp 450 Vp 450 Vp	5	20	500 Ω	---	---
	Dry	Yes	yes	sinusoidal modulated	1 2 3 4 5 6 7 8 9	1 W – 200 W	1.4 kVp 1.4 kVp 1.4 kVp 1.4 kVp 1.5 kVp 1.6 kVp 1.6 kVp 1.6 kVp	5	100	500 Ω	20 kHz	30 % 30 % 30 % 30 % 25 % 20 % 20 % 20 %
	Argon	Yes	yes	sinusoidal constant	1 2 3 4 5 6 7 8 9	1 W – 300 W	400 Vp 450 Vp 560 Vp 650 Vp 650 Vp 700 Vp 700 Vp 700 Vp 750 Vp	5	100	500 Ω	---	---
	Resection	Yes	yes	sinusoidal constant	1 2 3 4 5	250 W	650 Vp 700 Vp 700 Vp 700 Vp 750 Vp	2	---	500 Ω	---	---
	MetralLOOP	Yes	Yes	sinusoidal constant	1 2 3	300 W 350 W 400 W	650 Vp	1	---	100 Ω	---	---
	Laparoscopy	Yes	Yes	sinusoidal constant	1 2 3 4 5 6 7 8 9	1 W - 200W	400 Vp 450 Vp 560 Vp 650 Vp 650 Vp 700 Vp 700 Vp 700 Vp 750 Vp	5	100	500 Ω	---	---

Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
	GastroLOOP 1	Yes	Yes	sinusoidal alternating Cut, Coag and break phases	1 2 3 4 5	400 W	750 Vp	3	---	500 Ω	---	---
	GastroLOOP 2	Yes	Yes	sinusoidal alternating Cut, Coag and break phases	1 2 3 4 5	400 W	750 Vp	3	---	500 Ω	---	---
	GastroLOOP 3	Yes	Yes	sinusoidal alternating Cut, Coag and break phases	1 2 3 4 5	400 W	750 Vp	3	---	500 Ω	---	---
	GastroKNIFE 1	Yes	Yes	sinusoidal alternating Cut and Coag phases	1 2 3 4 5	300 W	650 Vp 650 Vp 650 Vp 700 Vp 750 Vp	3	---	500 Ω	---	---
	GastroKNIFE 2	Yes	Yes	sinusoidal alternating Cut and Coag phases	1 2 3 4 5	300 W	650 Vp 650 Vp 650 Vp 700 Vp 750 Vp	3	---	500 Ω	---	---
	GastroKNIFE 3	Yes	Yes	sinusoidal alternating Cut and Coag phases	1 2 3 4 5	300 W	650 Vp 650 Vp 650 Vp 700 Vp 750 Vp	3	---	500 Ω	---	---

Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
Modes Monopolar Coagulation												
	Moderate			sinusoidal constant	1 2 3	1 W – 120 W	250 Vp	2	60	75 Ω	---	---
	Forced non cutting			pulsed modulated	-	1 W - 80 W	3.5 kVp	---	50	1000 Ω	20 kHz	1 pulse
	Forced mixed			sinusoidal modulated	1 2 3	1 W – 120 W	1.5 kVp 2.0 kVp 2.5 kVp	2	60	500 Ω	30 kHz	sinusoidal 1 pulse
	Forced cutting			sinusoidal modulated	1 2 3 4	1 W – 250 W	1.5 kVp 1.5 kVp 1.3 kVp 1.3 kVp	2	80	500 Ω	20 kHz	30 % 35 % 40 % 50 %
	Spray			pulsed modulated	1 2 3 4	1 W – 120 W	3.0 kVp 3.8 kVp 4.6 kVp 5.0 kVp	2	80	500 Ω	20 kHz	sinusoidal 1 pulse 1 Impuls 1 Impuls 1 Impuls
	Argon			pulsed modulated	-	1 W – 120 W	4.6 kVp	---	80	500 Ω	20 kHz	1 pulse
	Argon flexible			pulsed modulated	-	1 W – 120 W	4.4 kVp	---	20	500 Ω	Power dependent 1 kHz - 20 kHz	1 pulse
	Argon flex. pulse			pulsed modulated	1 2 3	1 W – 80 W	4.4 kVp	2	20	500 Ω	Power dependent 1 kHz - 20 kHz	1 pulse 1 pulse 1 pulse
	Resection			sinusoidal modulated	-	1 W -120 W	2.2 kVp	---	60	500 Ω	30 kHz	sinusoidal 1 pulse

Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
Modes Monopolar Coagulation												
	Cardiac Mammary			sinusoidal modulated	-	1 W - 60 W	1.8 kVp	---	15	500 Ω	30 kHz	sinusoidal 1 pulse
	Cardiac Thorax			sinusoidal modulated	-	1 W - 100 W	1.8 kVp	---	40	500 Ω	30 kHz	sinusoidal 1 pulse
	SimCoag			sinusoidal modulated pulsed modulated pulsed modulated	1 2 3	1 W - 120 W	2.0 kVp 2.5 kVp 4.6 kVp	2	60	500 Ω	30 kHz 30 kHz 20 kHz	sinusoidal 1 pulse sinusoidal 1 pulse 1 pulse
	Gastro Coag			sinusoidal modulated	1 2 3	1 W - 50 W	1.8 kVp 2.2 kVp 2.8 kVp	2	15	500 Ω	30 kHz	sinusoidal 1 pulse
	Laparoscopy			sinusoidal modulated	-	1 W - 120 W	1.8 kVp	---	60	500 Ω	20 kHz	5%
Modes Bipolar Cutting												
	Standard	Yes	Yes	sinusoidal constant	-	1 W - 200 W	400 Vp	---	100	75 Ω	---	---
	Bipolar resection	Yes	Yes	sinusoidal constant	1 2 3	250 W	500 Vp	2	---	75 Ω	---	---
			Initial incision phase	860 W								
	Bipolar scissors			sinusoidal constant	-	1 W - 120 W	200 Vp	---	40	75 Ω	---	---
	Vaporisation	Yes	Yes	sinusoidal constant	1 2 3	300 W 300 W 400 W	350 Vp 400 Vp 450 Vp	2	---	75 Ω	---	---

Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
Modes Bipolar Coagulation												
	Standard forceps			sinusoidal constant	-	1 W – 120 W	150 Vp	---	40	50 Ω	---	---
	Standard forceps AUTO			sinusoidal constant	-	5 W – 120 W	150 Vp	---	40	50 Ω	---	---
	Micro forceps			sinusoidal constant	-	0.1 W – 40 W	90 Vp	---	10	50 Ω	---	---
	Forceps forced			sinusoidal modulated	-	1 W – 100 W	550 Vp	---	50	50 Ω	20 kHz	10%
	LIGATION			sinusoidal modulated	-	200 W	190 Vp	---	---	25 Ω	1 - 2 Hz	sinusoidal
	TissueSeal PLUS			sinusoidal modulated	-	200 W	190 Vp	---	---	25 Ω	1 - 2 Hz	sinusoidal
	Bipolar scissors			sinusoidal constant	-	1 W – 120 W	200 Vp	---	40	75 Ω	---	---

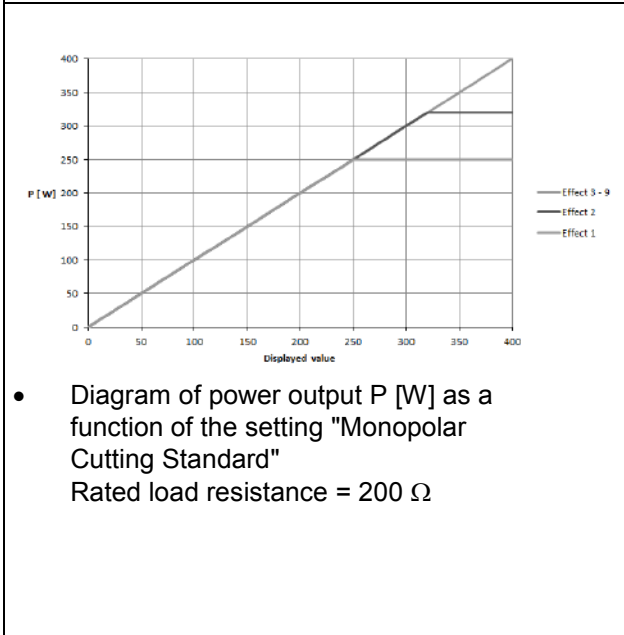
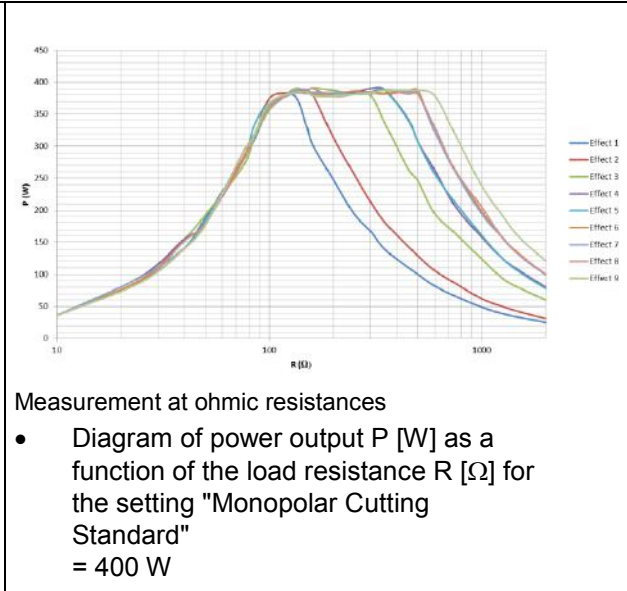
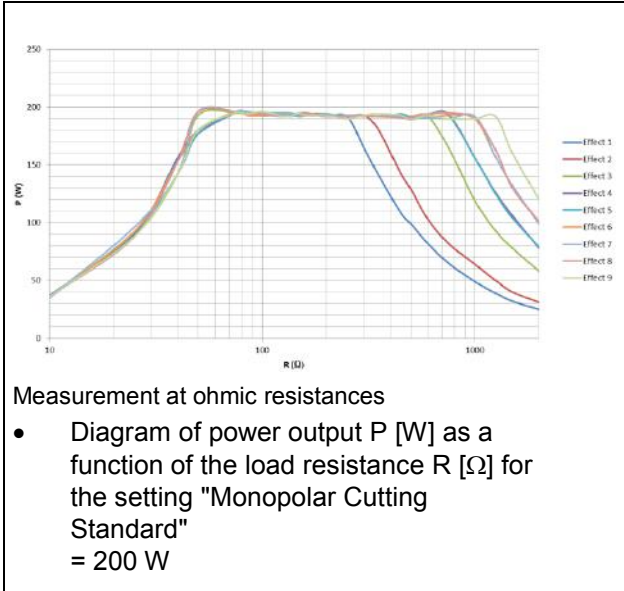
Mode icon	Description	CCS	ARC CONTROL	Form of HF voltage	Max. power output		Peak voltage	Default values		Rated load resistance	Modulation	
					Effect	Power range		Effect	Max. Watt		Frequency	Duty cycle
Modes Bipolar Coagulation												
	Laparoscopy			sinusoidal constant	-	1 W – 120 W	150 Vp	---	50	50 Ω	---	---
	Laparoscopy Micro			sinusoidal constant	-	1 W – 100 W	110 Vp	---	40	25 Ω	---	---
	Bipolar resection			sinusoidal constant	1 2 3 4	125 W 200 W 275 W 350 W	190 Vp	2	---	25 Ω	---	---
	SimCoag			sinusoidal modulated	-	5 W - 60 W	550 Vp	---	40	50 Ω	20 kHz	50%
	Vaporisation			sinusoidal constant sinusoidal modulated sinusoidal modulated	1 2 3	250 W	190 Vp 400 Vp 500 Vp	2	---	25 Ω	- 20 kHz 20 kHz	---- 50% 50%



The max. values are not necessarily created at rated load resistance. The HF power is subject to a tolerance limit of ± 20%.

10.2. Output, voltage and current diagrams

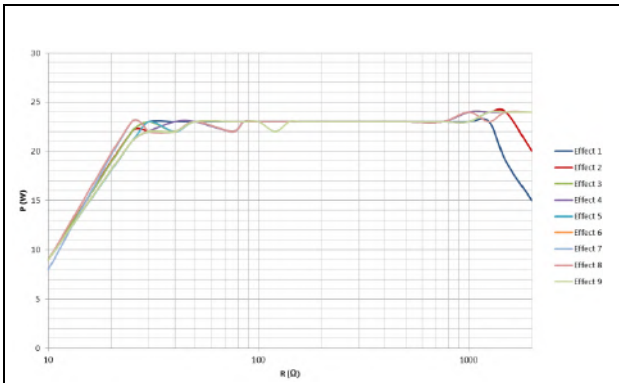
Monopolar Cutting – Standard



Effect	U (Vp)
1	400
2	450
3	560
4	650
5	650
6	700
7	700
8	700
9	750

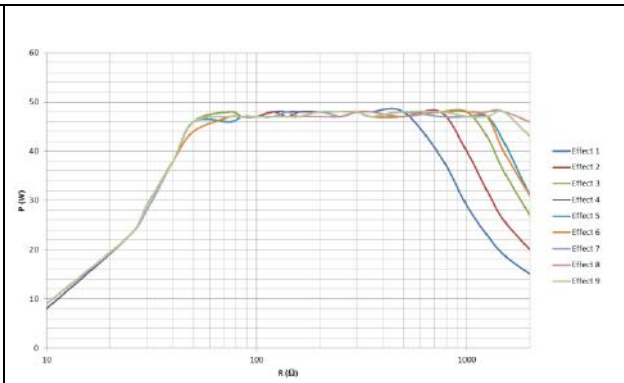
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Standard" (idle mode)

Monopolar Cutting – Micro



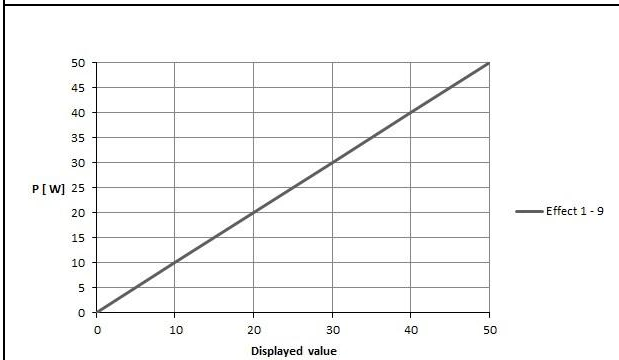
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Micro" = 25 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Micro" = 50 W

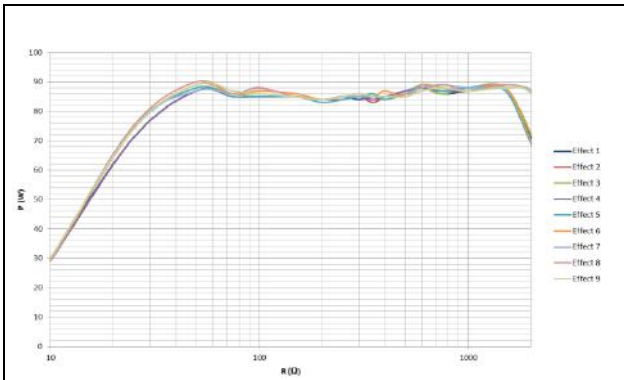


- Diagram of power output P [W] as a function of the setting "Monopolar Cutting Micro" Rated load resistance = 500 Ω

Effect	U [Vp]
1	280
2	340
3	380
4	400
5	400
6	400
7	450
8	450
9	450

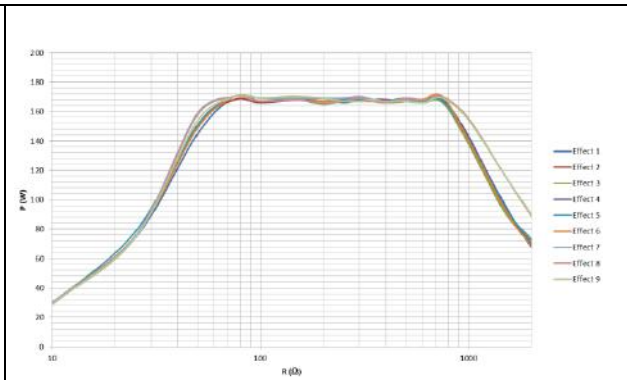
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Micro" (idle mode)

Monopolar Cutting – Dry



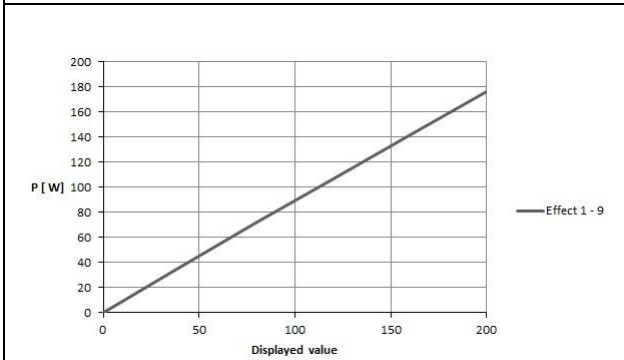
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Dry" = 100 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Dry" = 200 W

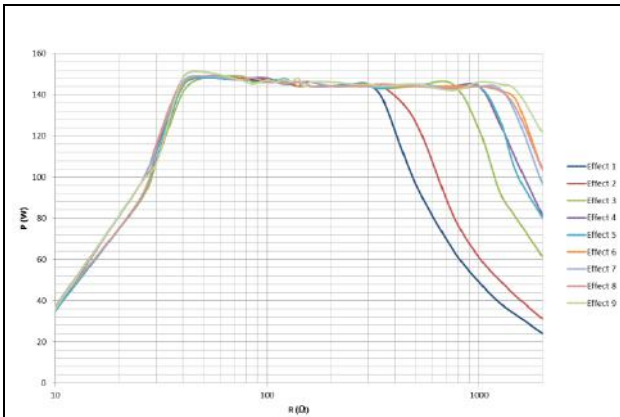


- Diagram of power output P [W] as a function of the setting "Monopolar Cutting Dry" Rated load resistance = 500 Ω

Effect	U (Vp)
1	1400
2	1400
3	1400
4	1400
5	1500
6	1600
7	1600
8	1600
9	1600

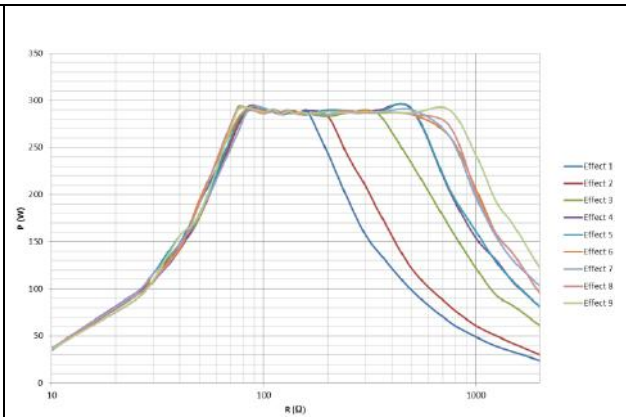
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Dry" (idle mode)

Monopolar Cutting – Argon



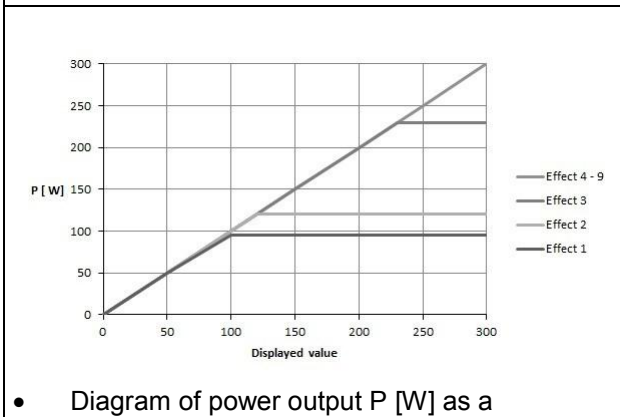
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Argon" = 150 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Argon" = 300 W



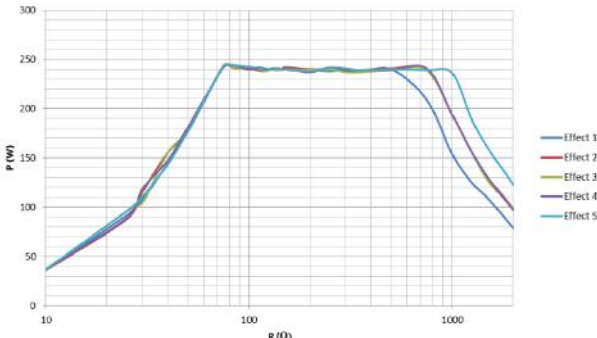
- Diagram of power output P [W] as a function of the setting "Monopolar Cutting Argon"
Rated load resistance= 500 Ω

Effect	U (Vp)
1	400
2	450
3	560
4	650
5	650
6	700
7	700
8	700
9	750

- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Argon" (idle mode)

Monopolar Cutting – Resection



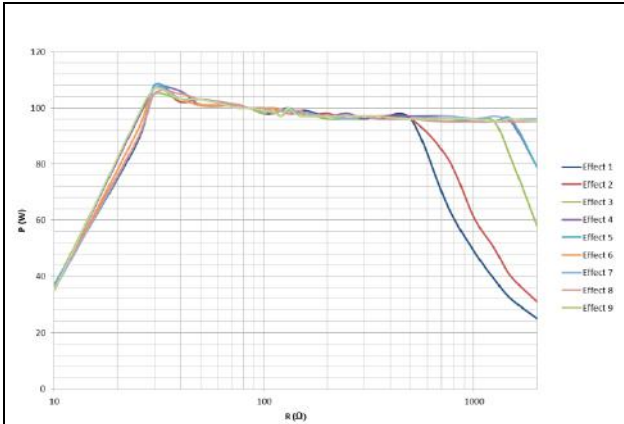
 <p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Resection" 																									
<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Effect</th> <th>P (W)</th> </tr> </thead> <tbody> <tr><td>1</td><td>250</td></tr> <tr><td>2</td><td>250</td></tr> <tr><td>3</td><td>250</td></tr> <tr><td>4</td><td>250</td></tr> <tr><td>5</td><td>250</td></tr> </tbody> </table> <ul style="list-style-type: none"> Table of power output P [W] as a function of the setting "Monopolar Cutting Resection" Rated load resistance= 500 Ω 	Effect	P (W)	1	250	2	250	3	250	4	250	5	250	<table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Effect</th> <th>U (Vp)</th> </tr> </thead> <tbody> <tr><td>1</td><td>650</td></tr> <tr><td>2</td><td>700</td></tr> <tr><td>3</td><td>700</td></tr> <tr><td>4</td><td>700</td></tr> <tr><td>5</td><td>750</td></tr> </tbody> </table> <ul style="list-style-type: none"> Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Resection" (idle mode) 	Effect	U (Vp)	1	650	2	700	3	700	4	700	5	750
Effect	P (W)																								
1	250																								
2	250																								
3	250																								
4	250																								
5	250																								
Effect	U (Vp)																								
1	650																								
2	700																								
3	700																								
4	700																								
5	750																								

Monopolar Cutting – MetraLOOP



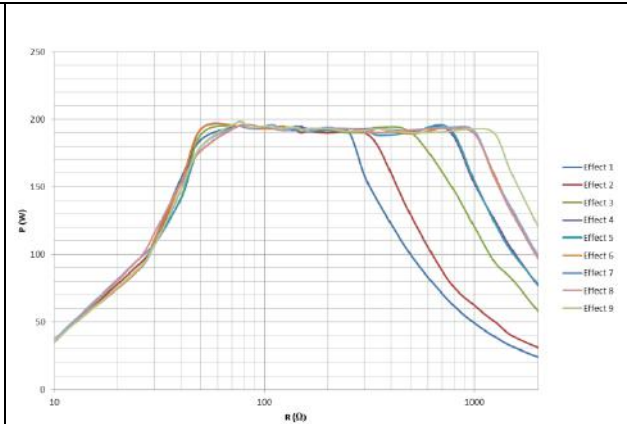
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting MetraLOOP" 	<ul style="list-style-type: none"> • 																
<table border="1"> <thead> <tr> <th>Effect</th> <th>P (W)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>300</td> </tr> <tr> <td>2</td> <td>350</td> </tr> <tr> <td>3</td> <td>400</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Table of power output P [W] as a function of the setting "Monopolar Cutting MetraLOOP". Rated load resistance= 100 Ω 	Effect	P (W)	1	300	2	350	3	400	<table border="1"> <thead> <tr> <th>Effect</th> <th>U (Vp)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>650</td> </tr> <tr> <td>2</td> <td>650</td> </tr> <tr> <td>3</td> <td>650</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting MetraLOOP" (idle mode) 	Effect	U (Vp)	1	650	2	650	3	650
Effect	P (W)																
1	300																
2	350																
3	400																
Effect	U (Vp)																
1	650																
2	650																
3	650																

Monopolar Cutting – Laparoscopy



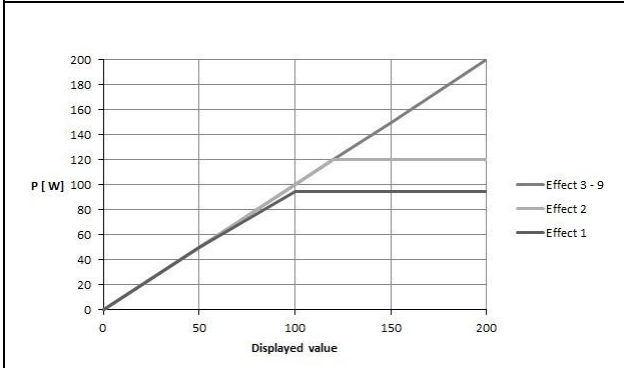
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Laparoscopy" = 100 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting Laparoscopy" = 200 W

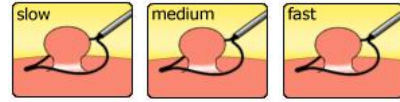


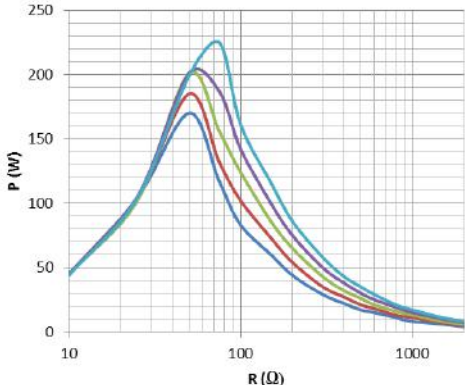
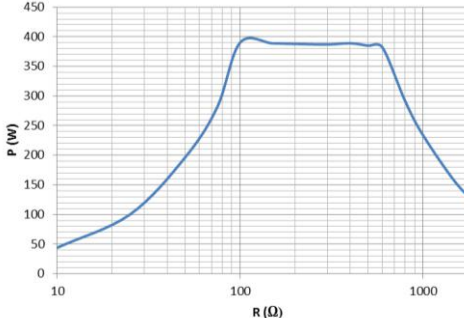
- Diagram of power output P [W] as a function of the setting "Monopolar Cutting Laparoscopy" Rated load resistance= 500 Ω

Effect	U (Vp)
1	400
2	450
3	560
4	650
5	650
6	700
7	700
8	700
9	750

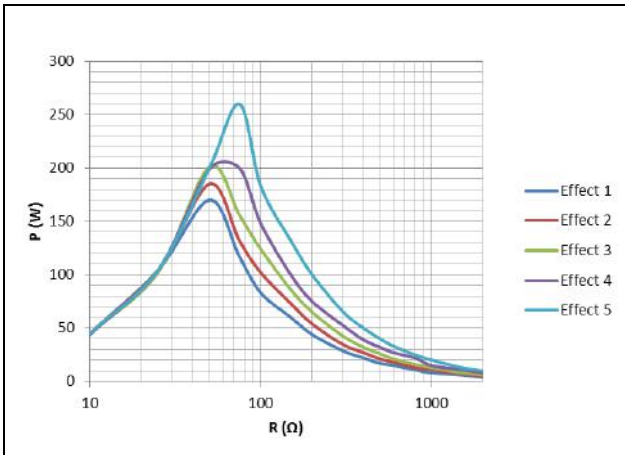
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting Laparoscopy" (idle mode)

Monopolar Cutting – GastroLOOP 1, 2, 3



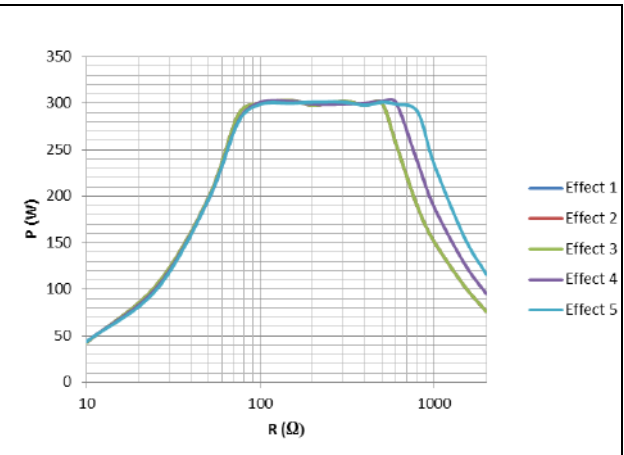
 <p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting GastroLOOP 1, 2, 3" coag phase 	 <p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting GastroLOOP 1, 2, 3" cut phase 																														
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Effect</th> <th style="width: 20%;">P (W) coag phase</th> <th style="width: 20%;">P (W) cut phase</th> </tr> </thead> <tbody> <tr><td>1</td><td>17</td><td>400</td></tr> <tr><td>2</td><td>21</td><td>400</td></tr> <tr><td>3</td><td>26</td><td>400</td></tr> <tr><td>4</td><td>30</td><td>400</td></tr> <tr><td>5</td><td>35</td><td>400</td></tr> </tbody> </table> <p>Table of power output P [W] as a function of the setting "Monopolar Cutting GastroLOOP 1, 2, 3" Rated load resistance= 500 Ω</p>	Effect	P (W) coag phase	P (W) cut phase	1	17	400	2	21	400	3	26	400	4	30	400	5	35	400	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">Effect</th> <th style="width: 20%;">U (Vp)</th> </tr> </thead> <tbody> <tr><td>1</td><td>750</td></tr> <tr><td>2</td><td>750</td></tr> <tr><td>3</td><td>750</td></tr> <tr><td>4</td><td>750</td></tr> <tr><td>5</td><td>750</td></tr> </tbody> </table> <p>Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting GastroLOOP 1, 2, 3" (idle mode)</p>	Effect	U (Vp)	1	750	2	750	3	750	4	750	5	750
Effect	P (W) coag phase	P (W) cut phase																													
1	17	400																													
2	21	400																													
3	26	400																													
4	30	400																													
5	35	400																													
Effect	U (Vp)																														
1	750																														
2	750																														
3	750																														
4	750																														
5	750																														

Monopolar Cutting – GastroKNIFE 1, 2, 3



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting GastroKNIFE 1, 2, 3" coag phase



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Cutting GastroKNIFE 1, 2, 3" cut phase

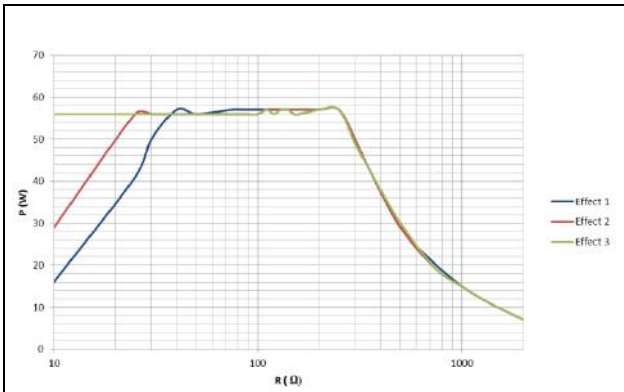
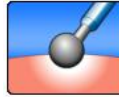
Effect	P (W) coag phase	P (W) cut phase
1	17	300
2	21	300
3	26	300
4	32	300
5	40	300

- Table of power output P [W] as a function of the setting "Monopolar Cutting GastroKNIFE 1, 2, 3" Rated load resistance= 500 Ω

Effect	U (Vp)
1	650
2	650
3	650
4	700
5	750

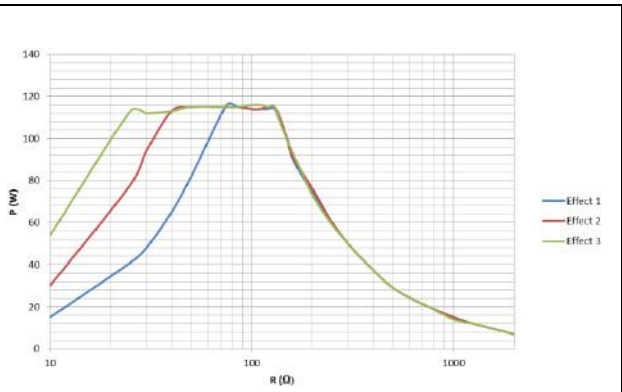
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Cutting GastroKNIFE 1, 2, 3" (idle mode)

Monopolar Coagulation – Moderate



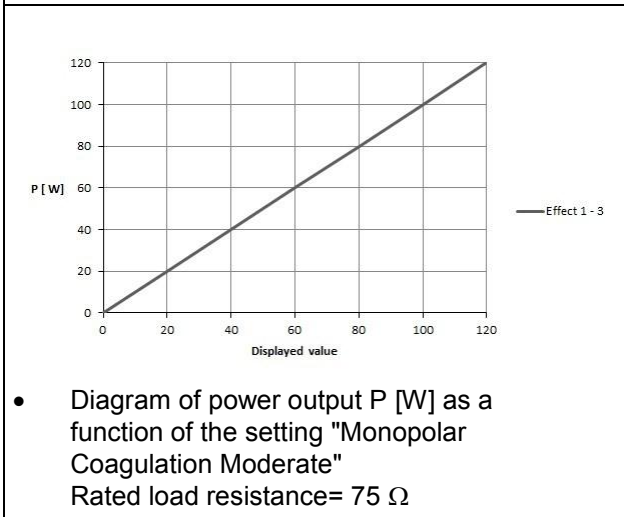
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Moderate" = 60 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Moderate" = 120 W



- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Moderate" Rated load resistance= 75 Ω

Effect	U (Vp)
1	250
2	250
3	250

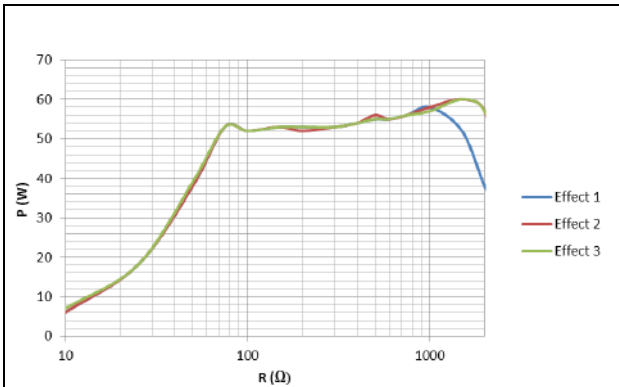
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation Moderate" (idle mode)

Monopolar Coagulation – Forced non cutting



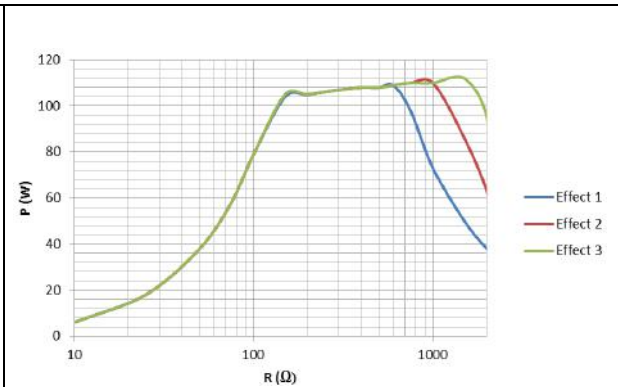
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced non cutting" = 40 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced non cutting" = 80 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Forced non cutting" Rated load resistance = 1000 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Monopolar Coagulation Moderate" (idle mode) = 3500 Vp

Monopolar Coagulation – Forced mixed



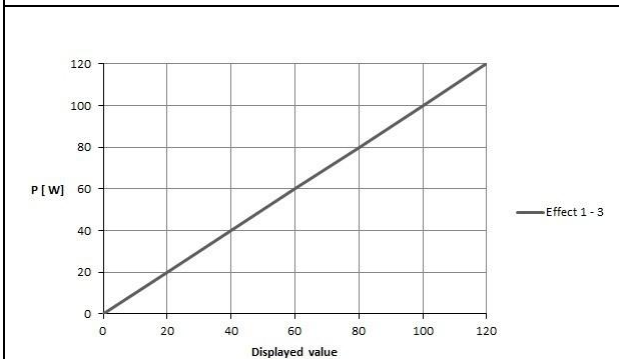
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced mixed" = 60 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced mixed" = 120 W

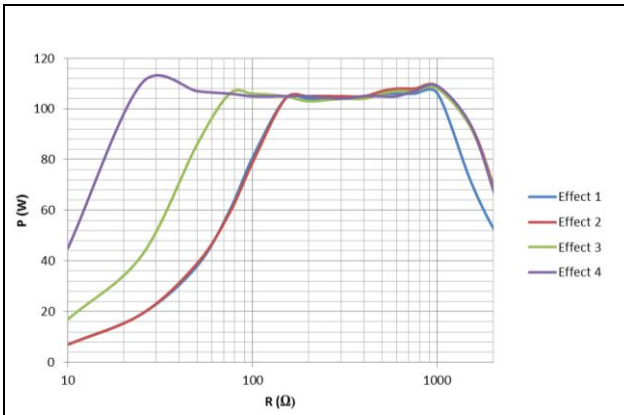
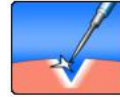


- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Forced mixed" Rated load resistance = 500 Ω

Effect	U (Vp)
1	1500
2	2000
3	2500

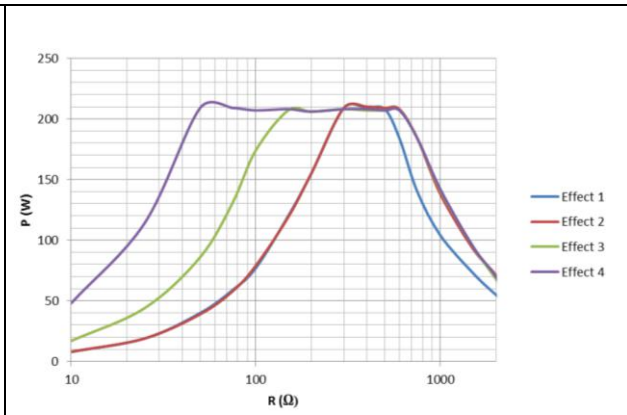
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation Forced mixed" (idle mode)

Monopolar Coagulation – Forced cutting



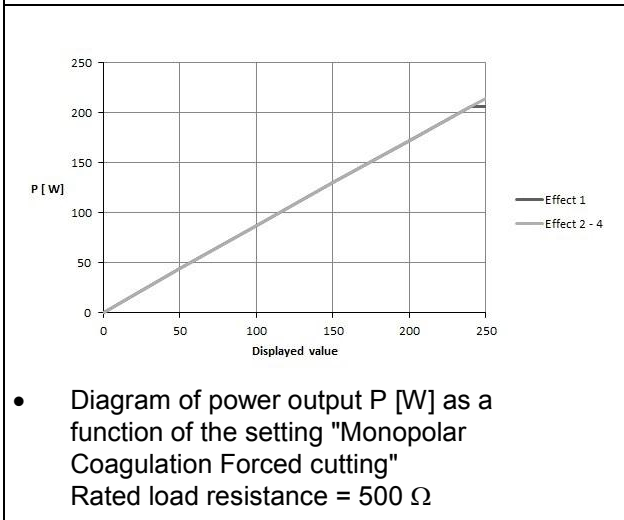
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced cutting" = 125 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Forced cutting" = 250 W

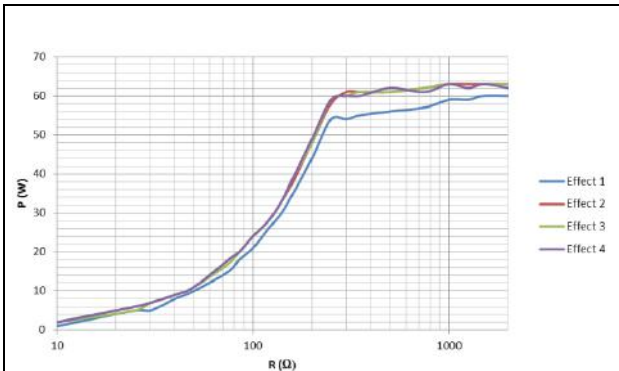
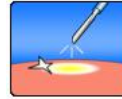


- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Forced cutting" Rated load resistance = 500 Ω

Effect	U (Vp)
1	1500
2	1500
3	1300
4	1300

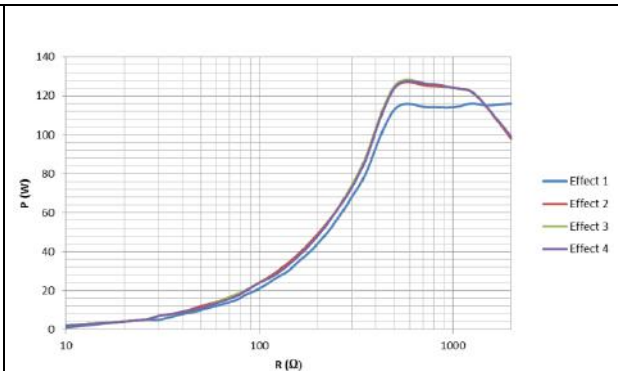
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation Forced cutting" (idle mode)

Monopolar Coagulation – Spray



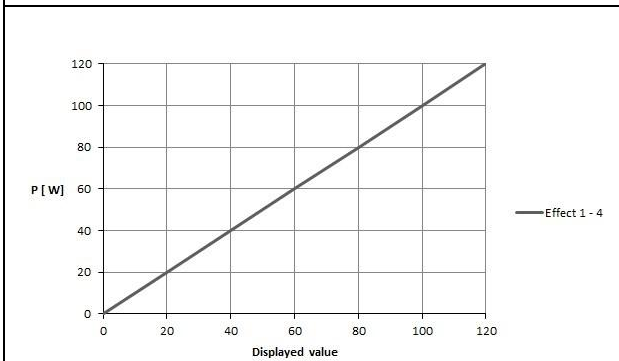
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Spray" = 60 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Spray" = 120 W



- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Spray" Rated load resistance = 500 Ω

Effect	U (Vp)
1	3000
2	3800
3	4600
4	5000

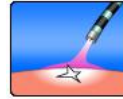
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation Spray" (idle mode)

Monopolar Coagulation – Argon



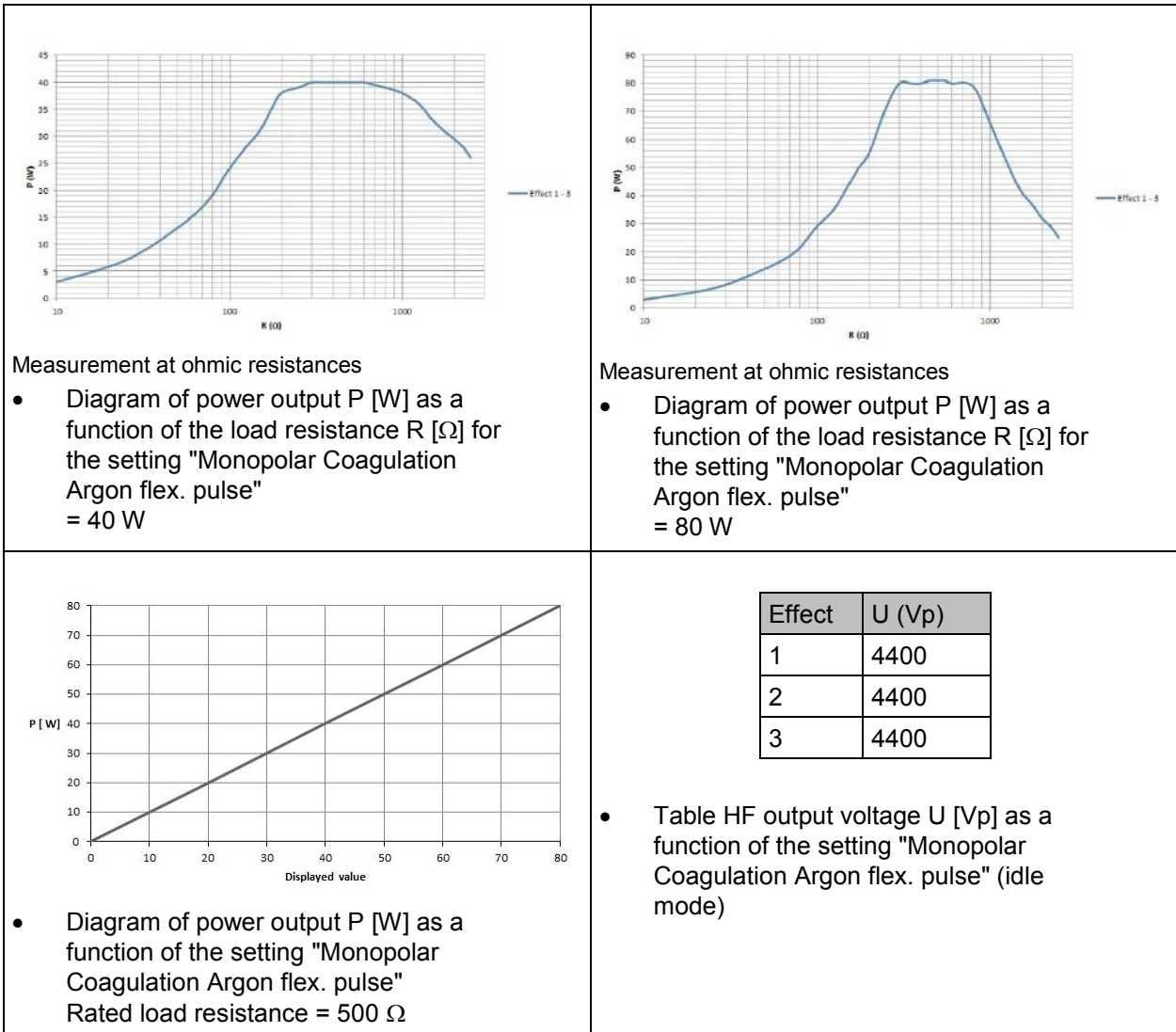
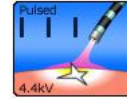
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Argon open" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Argon open" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Argon open" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Monopolar Coagulation Argon open" (idle mode) = 4600 Vp

Monopolar Coagulation – Argon flexible



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Argon flexible" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Argon flexible" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Argon flexible" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Monopolar Coagulation Argon flexible" (idle mode) = 4400 Vp

Monopolar Coagulation – Argon flex. pulse



The puls frequency changes with the effect setting. The higher the effect level, the faster the pulse sequence.
 Effect 1: 1 Hz, effect 2: 5 Hz, effect 3: 10 Hz
 The mode "Argon flexible" is paused due to the pulse sequence.

Monopolar Coagulation – Resection



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Resection" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Resection" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Resection" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Monopolar Coagulation Resection" (idle mode) = 2200 Vp

Monopolar Coagulation – Cardiac Mammary



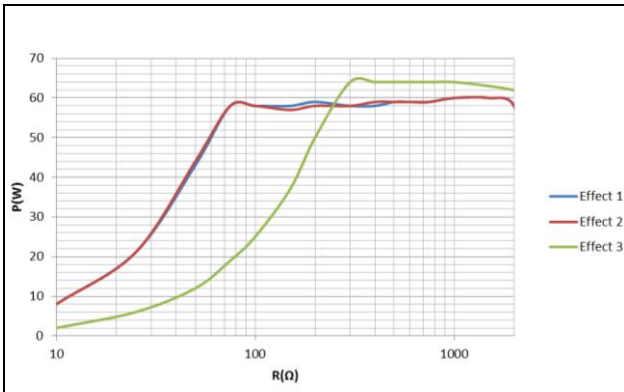
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Cardiac Mammary" = 30 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Cardiac Mammary" = 60 W
<ul style="list-style-type: none"> Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Cardiac Mammary" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> HF output voltage U [Vp] for the setting "Monopolar Coagulation Cardiac Mammary" (idle mode) = 1800 Vp

Monopolar Coagulation – Cardiac Thorax



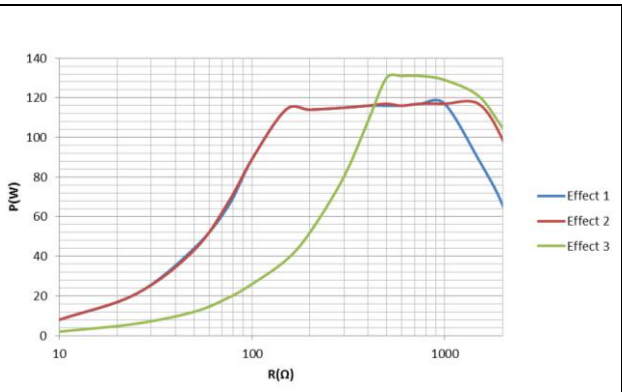
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Cardiac Thorax" = 50 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Cardiac Thorax" = 100 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Cardiac Thorax" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Monopolar Coagulation Cardiac Thorax" (idle mode) = 1800 Vp

Monopolar Coagulation – SimCoag



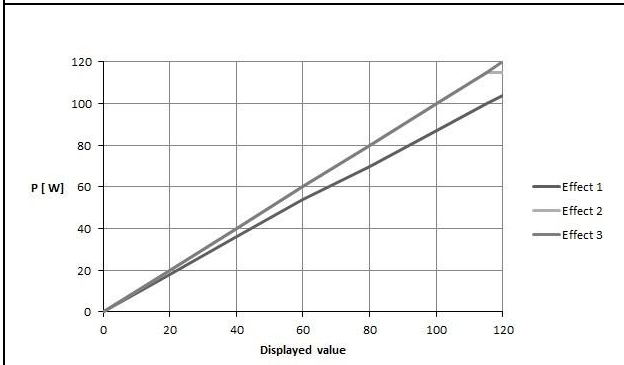
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation SimCoag" = 60 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Mon opolar Coagulation SimCoag" = 120 W

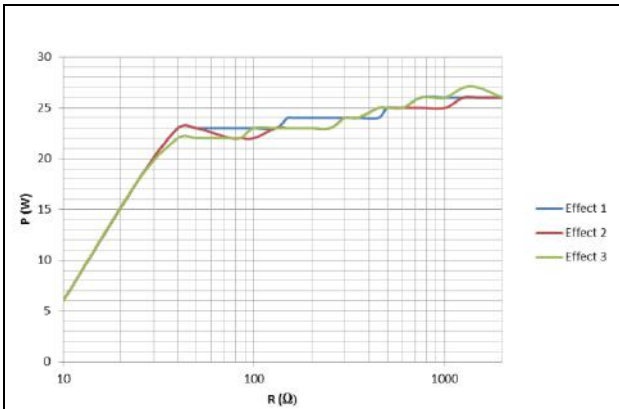
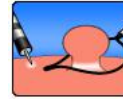


- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation SimCoag" Rated load resistance = 500 Ω

Effect	U (Vp)
1	2000
2	2500
3	4600

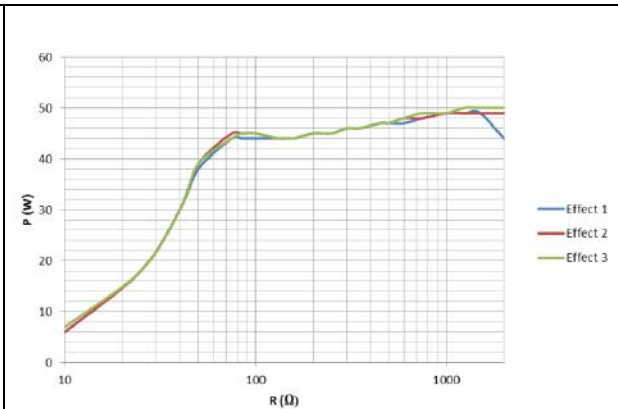
- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation SimCoag" (idle mode)

Monopolar Coagulation – Gastro Coag



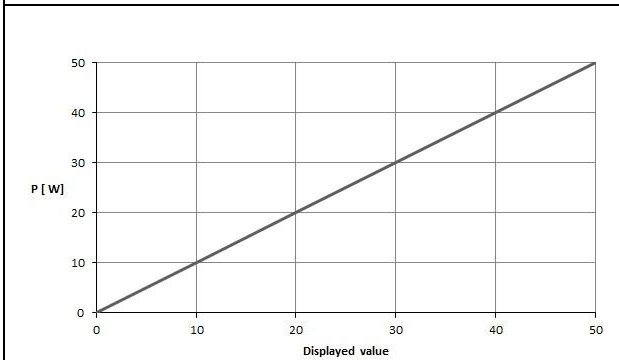
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation GastroCut Coag" = 25 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation GastroCut Coag" = 50 W



- Diagram of power output P [W] as a function of the setting "Monopolar Coagulation GastroCut Coag" Rated load resistance = 500 Ω

Effect	U (Vp)
1	1800
2	2200
3	2800

- Table of HF output voltage U [Vp] as a function of the setting "Monopolar Coagulation GastroCut Coag" (idle mode)

Monopolar Coagulation – Laparoscopy



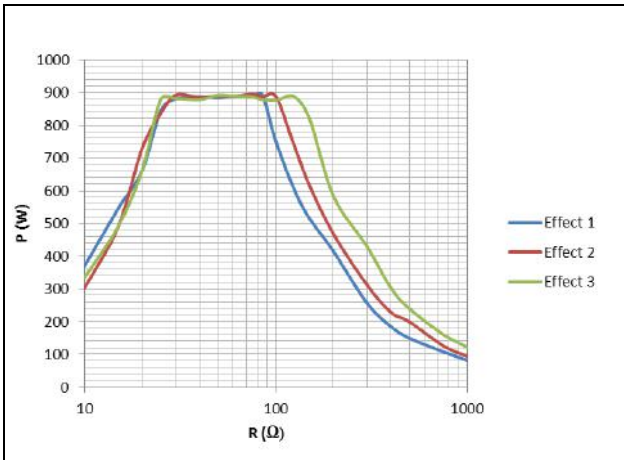
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Laparoscopy" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Monopolar Coagulation Laparoscopy" = 120 W
<ul style="list-style-type: none"> Diagram of power output P [W] as a function of the setting "Monopolar Coagulation Laparoscopy" Rated load resistance = 500 Ω 	<ul style="list-style-type: none"> HF output voltage U [Vp] for the setting "Monopolar Coagulation Laparoscopy" (idle mode) = 1800 Vp

Bipolar Cutting – Standard



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting Standard" = 100 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting Standard" = 200 W
<ul style="list-style-type: none"> Diagram of power output P [W] as a function of the setting "Bipolar Cutting Standard" Rated load resistance = 75 Ω 	<ul style="list-style-type: none"> HF output voltage U [Vp] for the setting "Bipolar Cutting Standard" (idle mode) = 400 Vp

Bipolar Cutting – Resection

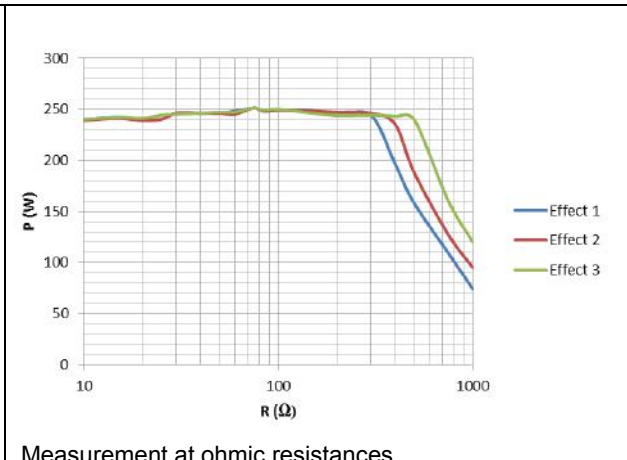


Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting Resection" Initial cut phase

Effect	P (W)
1	250
2	250
3	250

- Table of power output P [W] as a function of the setting " Bipolar Cutting Resection " Rated load resistance = 75 Ω



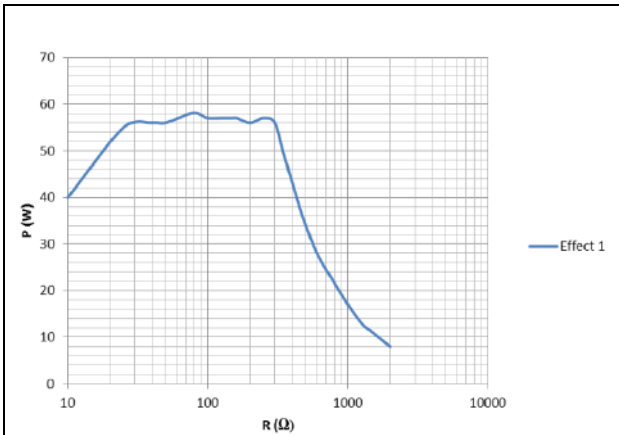
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting Resection" Phase after the initial cut.

Effect	U (Vp)
1	500
2	500
3	500

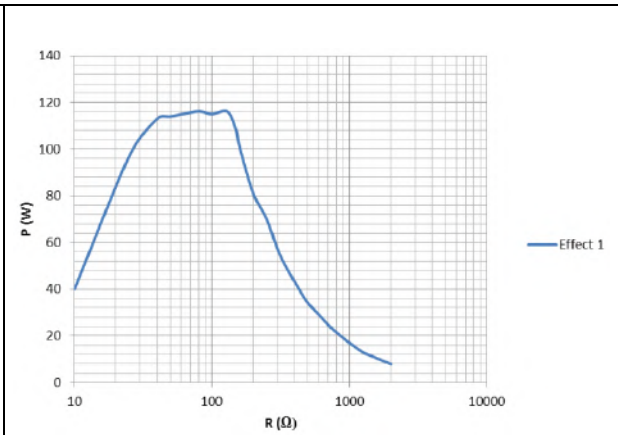
- Table of HF output voltage U [Vp] as a function of the setting " Bipolar Cutting Resection " (idle mode)

Bipolar Cutting – Bipolar scissors



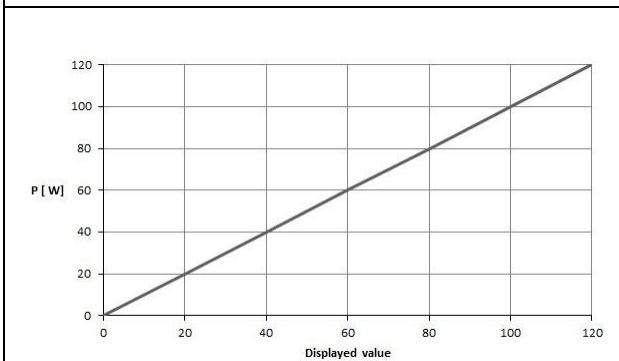
Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting n bipolar scissors" = 60 W



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting bipolar scissors" = 120 W



- Diagram of power output P [W] as a function of the setting " Bipolar Cutting bipolar scissors " Rated load resistance = 75 Ω

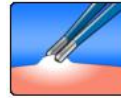
- HF output voltage U [Vp] for the setting " Bipolar Cutting Bipolar scissors " (idle mode) = 200 Vp

Bipolar Cutting – Vaporisation



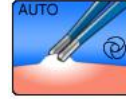
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Cutting Vaporisation" 																	
<table border="1"> <thead> <tr> <th>Effect</th> <th>P (W)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>300</td> </tr> <tr> <td>2</td> <td>300</td> </tr> <tr> <td>3</td> <td>400</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Table of power output P [W] as a function of the setting " Bipolar Cutting Vaporisation " Rated load resistance = 75 Ω 	Effect	P (W)	1	300	2	300	3	400	<table border="1"> <thead> <tr> <th>Effect</th> <th>U (Vp)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>350</td> </tr> <tr> <td>2</td> <td>400</td> </tr> <tr> <td>3</td> <td>450</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Table of HF output voltage U [Vp] as a function of the setting " Bipolar Cutting Vaporisation " (idle mode) 	Effect	U (Vp)	1	350	2	400	3	450
Effect	P (W)																
1	300																
2	300																
3	400																
Effect	U (Vp)																
1	350																
2	400																
3	450																

Bipolar Coagulation – Standard forceps



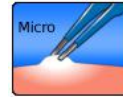
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Standard forceps" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Standard forceps" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting " Bipolar Coagulation Standard forceps " Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting " Bipolar Coagulation Standard forceps " (idle mode) = 150 Vp

Bipolar Coagulation – Standard forceps AUTOSTART



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Standard forceps AUTOSTART" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Standard forceps AUTOSTART" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting " Bipolar Coagulation Standard forceps AUTOSTART" Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting " Bipolar Coagulation Standard forceps AUTOSTART" (idle mode) = 150 Vp

Bipolar Coagulation – Micro forceps



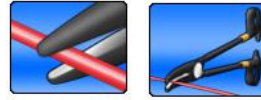
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Micro forceps" = 20 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Micro forceps" = 40 W
<ul style="list-style-type: none"> Diagram of power output P [W] as a function of the setting " Bipolar Coagulation Micro forceps " Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> HF output voltage U [Vp] for the setting " Bipolar Coagulation Micro forceps " (idle mode) = 90 Vp

Bipolar Coagulation – Forceps forced



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation forceps forced" = 50 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation forceps forced" = 100 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting " Bipolar Coagulation forceps forced " Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting " Bipolar Coagulation forceps forced " (idle mode) = 550 Vp

LIGATION / TissueSeal PLUS



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "LIGATION" 	
<ul style="list-style-type: none"> • Power output P [W] as a function of the setting " LIGATION " Rated load resistance (25 Ω) = 200 W 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting " LIGATION " (idle mode) = 190 Vp

Bipolar Coagulation – Bipolar scissors



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation bipolar scissors" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation bipolar scissors" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting " Bipolar Coagulation bipolar scissors" Rated load resistance = 75 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting " Bipolar Coagulation Bipolar scissors " (idle mode) = 200 Vp

Bipolar Coagulation– Laparoscopy



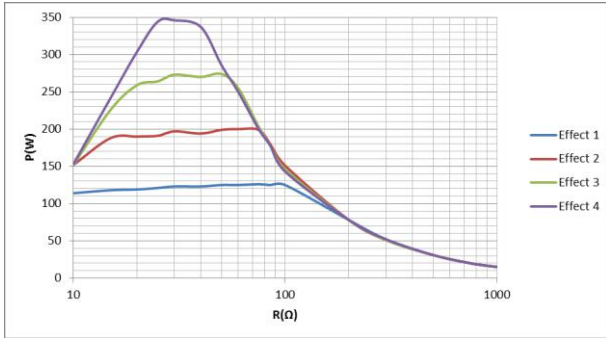
<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Laparoscopy" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Laparoscopy" = 120 W
<ul style="list-style-type: none"> Diagram of power output P [W] as a function of the setting " Bipolar Coagulation Laparoscopy " Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> HF output voltage U [Vp] for the setting " Bipolar Coagulation Laparoscopy " (idle mode) = 150 Vp

Bipolar Coagulation – Laparoscopy Micro



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation - Laparoscopy Micro" = 60 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation - Laparoscopy Micro" = 120 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting "Bipolar Coagulation - Laparoscopy Micro" Rated load resistance = 25 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Bipolar Coagulation - Laparoscopy Micro" (idle mode) = 110 Vp

Bipolar Coagulation – Bipolar Resection



Measurement at ohmic resistances

- Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Bipolar Resection"

Effect	P (W)
1	125
2	200
3	275
4	350

- Table of power output P [W] as a function of the setting "Bipolar Coagulation Bipolar Resection" (Rated load resistance = 25 Ω)

Effect	U (Vp)
1	190
2	190
3	190
4	190

- Table of HF output voltage U [Vp] as a function of the setting "Bipolar Coagulation Bipolar Resection" (idle mode)

Bipolar Coagulation – SimCoag bipolar



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Sim Coag" = 30 W 	<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation SimCoag" = 60 W
<ul style="list-style-type: none"> • Diagram of power output P [W] as a function of the setting " Bipolar Coagulation SimCoag " Rated load resistance = 50 Ω 	<ul style="list-style-type: none"> • HF output voltage U [Vp] for the setting "Bipolar Coagulation SimCoag" (idle mode) = 550 Vp

Bipolar Coagulation – Vaporisation



<p>Measurement at ohmic resistances</p> <ul style="list-style-type: none"> Diagram of power output P [W] as a function of the load resistance R [Ω] for the setting "Bipolar Coagulation Vaporisation" 																	
<table border="1"> <thead> <tr> <th>Effect</th> <th>P (W)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>250</td> </tr> <tr> <td>2</td> <td>250</td> </tr> <tr> <td>3</td> <td>250</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Table of power output P [W] as a function of the setting " Bipolar Coagulation Vaporisation " Rated load resistance = 25 Ω 	Effect	P (W)	1	250	2	250	3	250	<table border="1"> <thead> <tr> <th>Effect</th> <th>U (Vp)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>190</td> </tr> <tr> <td>2</td> <td>400</td> </tr> <tr> <td>3</td> <td>500</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Table of HF output voltage U [Vp] as a function of the setting "Bipolar Coagulation Vaporisation" (idle mode) 	Effect	U (Vp)	1	190	2	400	3	500
Effect	P (W)																
1	250																
2	250																
3	250																
Effect	U (Vp)																
1	190																
2	400																
3	500																

11. Accessories and replacement parts

Original BOWA accessories are suitable for use with the ARC Series¹ and ARC PLUS¹ devices. When using accessories made by other manufacturers, the user must ensure that they are designed for and compatible with the maximum HF peak voltage of the HF device.

For the use and correct preparation of the autoclavable devices, compliance with the relevant instruction manuals accompanying these devices is required.

Detailed information on accessories and replacement parts is available in the current accessories catalogue.

¹ This includes compliance to IEC 60601-1-2:2007; Ch. 5.2.2.1a)


12. EMC

- ▶ Medical electrical equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this document.
IEC 60601-1-2; Ch. 5.2.2.1a)
- ▶ Portable and mobile RF communication equipment can affect medical electrical equipment (see also table 4 and 6 on pages 161 and 162)
IEC 60601-1-2; Ch. 5.2.1.1b)
- ▶ The generator should not be used adjacent to or stacked with other electrical equipment. If adjacent or stacked use is necessary both the generator and other equipment should be observed to verify normal operation in the configuration in which it will be used.
IEC 60601-1-2; Ch. 5.2.2.1d)
- ▶ The use of accessories and cables other than those specified may result in increased emissions or decreased immunity.
IEC 60601-1-2; Ch. 5.2.2.1b)
- ▶ This HF device is solely intended to be used by trained medical personnel. This HF device may cause functional impairment or interference to the operation of other devices in the vicinity. It may be necessary to take suitable remedial measures, such as changing the orientation, arrangement or screening of the HF device.
IEC 60601-1-2:2007; Section 5.2.1.4

12.1. Guidelines and manufacturer's declaration in accordance with IEC 60601-1-2:2007

Emission of electromagnetic interference (IEC 60601-1-2, Table 1)		
The ARC 400 is intended for operation in an electromagnetic environment as described below. The customer or user of the ARC 400 should ensure that it is operated in such an environment.		
Interference emission measurement	Conformity	Electromagnetic environment guideline
HF emissions according to CISPR 11	Group 2	The ARC 400 must emit electromagnetic energy in order to perform its intended function. Nearby electronic devices may be affected.
HF emissions according to CISPR 11	Class A	The ARC 400 is suitable for use in facilities other than those suitable for a residential environment or those connected directly to the public power grid, which also supplies power to buildings used for residential purposes.
Emission of harmonics according to IEC 61000-3-2	Classes A	
Emission of voltage fluctuations and flicker according to IEC 61000-3-3	Conforms	

Immunity to electromagnetic interference (IEC 60601-1-2, Table 2)			
The ARC 400 is intended for operation in an electromagnetic environment as described below. The customer or user of the ARC 400 should ensure that it is operated in such an environment.			
Interference immunity test	IEC 60601 test level	Conformity level	Electromagnetic environment guidelines
Electrostatic discharge (ESD) according to IEC 61000-4-2	±6 kV contact discharge	±6 kV contact discharge	Floors should be wooden or concrete or finished with ceramic tiles. If the floor is finished with a synthetic material, the relative humidity must be at least 30%.
	±8 kV air discharge	±8 kV air discharge	
Fast transient electrical noise or bursts according to IEC 61000-4-4	±2 kV on AC supply lines	±2 kV on AC supply lines	The quality of the AC power should correspond to that of a typical business or hospital environment.
	±1 kV on input and output lines	±1 kV on input and output lines	
Surges according to IEC 61000-4-5	±1 kV between external conductors	±1 kV between external conductors	The quality of the AC power should correspond to that of a typical business or hospital environment.
	±2 kV between external conductor and ground	±2 kV between external conductor and ground	
Voltage dropouts, brief interruptions and supply voltage fluctuations according to IEC 61000-4-11	< 5% U_T for one half-cycle (> 95% dropout) 40% U_T for 5 cycles (60% dropout) 70% U_T for 25 cycles (30% dropout) < 5% U_T for 5 s (> 95% dropout)	< 5% U_T for one half-cycle (> 95% dropout) 40% U_T for 5 cycles (60% dropout) 70% U_T for 25 cycles (30% dropout) < 5% U_T for 5 s (> 95% dropout)	The quality of the AC power should correspond to that of a typical business or hospital environment. If the ARC 400 user requires it to continue operating in the event of a power dropout, it is recommended to power the ARC 400 from an uninterruptible power supply or a battery.
Note: U_T is the AC supply voltage before the test level is applied.			

Immunity to electromagnetic interference (IEC 60601-1-2, Table 4)			
The ARC 400 is intended for operation in an electromagnetic environment as described below. The customer or user of the ARC 400 should ensure that it is operated in such an environment.			
Interference immunity test	IEC 60601 test level	Conformity level	Electromagnetic environment guidelines
Conducted HF interference according to IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	10 V	Portable and mobile wireless devices should not be used inside the recommended protective distance from the ARC 400 and its cables, as calculated using the equation for the relevant transmission frequency. Recommended protective distance: $d = 0.35 \times \sqrt{P}$ $d = 0.35 \times \sqrt{P}$ for 80 MHz to 800 GHz $d = 0.75 \times \sqrt{P}$ for 80 MHz to 2.5 GHz where P is the rated transmitter output power in watts (W) as specified by the transmitter manufacturer and d is the recommended protective distance in meters (m). The field strength of stationary transmitters as determined by on-site measurements ^a should be lower than the compliance level ^b at all frequencies. Interference is possible in the vicinity of devices that bear the following symbol: <div style="text-align: right;">  </div>
Radiated HF interference according to IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 / 10 V/m	
Note 1	The higher frequency range applies in case of 80 MHz and 800 MHz.		
Note 2	These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by absorption and reflection by buildings, objects and people.		
^a	Field strengths from stationary transmitters, such as base stations for radio telephones, land mobile radios, amateur radio, AM and FM radio broadcasting and TV broadcasting, cannot be predicted accurately based on theoretical considerations. A survey of the electromagnetic conditions at the site should be performed to determine the electromagnetic environment resulting from stationary transmitters. If the measured field strength at the location where the ARC 400 is used exceeds the stated compliance level, the ARC 400 should be monitored to verify that it operates correctly. Additional measures, such as altering the orientation or location of the ARC 400, may be necessary if abnormal operation is observed.		
^b	The field strength should be lower than 10 V/m over the frequency range of 150 kHz to 80 MHz.		

Recommended protective distances between portable and mobile HF telecommunication devices and the ARC 400 (IEC 60601-1-2, Table 6)

The ARC 400 is designed for operation in an electromagnetic environment in which HF interference is monitored. The customer or user of the ARC 400 can help to prevent electromagnetic interference by complying with the minimum distance between portable and mobile HF telecommunication devices (transmitters) and the ARC 400. This distance depends on the output power of the communication device, as specified below.

Rated transmitter power (W)	Protective distance (m) at various transmission frequencies		
	150 kHz to 80 MHz $d = 0.35 \times \sqrt{P}$	80 MHz to 800 GHz $d = 0.35 \times \sqrt{P}$	800 MHz to 2.5 GHz $d = 0.7 \times \sqrt{P}$
0.01	0.035	0.035	0.07
0.1	0.11	0.11	0.22
1	0.35	0.35	0.70
10	1.1	1.1	2.2
100	3.5	3.5	7.0

For transmitters whose maximum rated power is not specified in the table above, the recommended protective distance d in meters (m) can be determined using the equation in the corresponding column, where P is the maximum rated output power of the transmitter in watts (W) as specified by the transmitter manufacturer.

Note 1	The higher frequency range applies in case of 80 MHz and 800 MHz.
Note 2	These guidelines may not be applicable in all cases. The propagation of electromagnetic waves is influenced by absorption and reflection by buildings, objects and people.

13. Disposal



Always comply with the national regulations of the relevant country when disposing of or recycling the device or its components.

Symbol	Designation
	A device marked with this symbol must be put into the separate waste collection for electrical and electronic devices. Disposal is carried out free of charge by the manufacturer within the European Union.

If you have any questions regarding product disposal, contact the service center, see section Technical service, page 109.

BOWA
EINFACH SICHER

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CE marked according to
Medical Device
93/42/EWG

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 www.zlk.de
 BS-MDR-099



Product Service

EU Quality Management System Certificate (MDR)

Pursuant to Regulation (EU) 2017/745 on Medical Devices, Annex IX Chapters I and III
 (Class IIa and Class IIb Devices)

No. G10 016316 0022 Rev. 00

Manufacturer:

BOWA-electronic GmbH & Co. KG

Heinrich-Hertz-Strasse 4-10
 72810 Gomaringen
 GERMANY

The Certification Body of TÜV SÜD Product Service GmbH certifies that the manufacturer has established, documented and implemented a quality management system as described in Article 10 (9) of the Regulation (EU) 2017/745 on medical devices. Details on device categories covered by the quality management system are described on the following page(s). The Report referenced below summarises the result of the assessment and includes reference to relevant CS, harmonized standards and test reports. The conformity assessment has been carried out according to Annex IX Chapter I and III of this regulation with a positive result. The quality management system assessment was accompanied by the assessment of technical documentation for devices selected on a representative basis. The certified quality management system is subject to periodical surveillance by TÜV SÜD Product Service GmbH. The surveillance assessment shall also include an assessment of the technical documentation for the device or devices concerned on the basis of further representative samples.

Report No.: 713175396

Valid from: 2020-08-10

Valid until: 2025-08-09

Christoph Dicks
 Head of Certification/Notified Body

Issue date: 2020-08-10

TÜV SÜD
 ZERTIFIKAT ◆ CERTIFICATE ◆ 認 證 證 書 ◆ CERTIFICADO ◆ CERTIFICAT



Benannt durch/Designated by
Zentralstelle der Länder
für Gesundheitsschutz
bei Arzneimitteln und
Medizinprodukten
www.zflg.de
BS-MDR-099



Product Service

EU Quality Management System Certificate (MDR)

Pursuant to Regulation (EU) 2017/745 on Medical Devices, Annex IX Chapters I and III
(Class IIa and Class IIb Devices)

No. G10 016316 0022 Rev. 00

Classification: IIb
Intended Purpose: Electrosurgical equipment for cutting and coagulation of tissue

Device Group: L180602 - ELECTRODES, ELECTROSURGICAL
ENDOTHERAPY, REUSABLE

Classification: IIb
Intended Purpose: Electrosurgical equipment for cutting and coagulation of tissue

Device Group: K020401 - ARGON GAS SURGICAL INSTRUMENTARY,
SINGLE-USE

Classification: IIb
Intended Purpose: Electrosurgical equipment for cutting and coagulation of tissue

Device Group: L180601 - ELECTRODES, "OPEN SKY" ELECTROSURGICAL,
REUSABLE

Classification: IIb
Intended Purpose: Electrosurgical equipment for cutting and coagulation of tissue

The validity of this certificate depends on conditions and/or is limited to the following: - none -

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ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ CERTIFICADO ◆ CERTIFICAT



Certificate

No. Q5 016316 0021 Rev. 01

Holder of Certificate: **BOWA-electronic GmbH & Co. KG**
Heinrich-Hertz-Strasse 4-10
72810 Gomaringen
GERMANY

Certification Mark:



Scope of Certificate: **Design and development, production and distribution of sterile and non-sterile medical devices: Electrosurgical Units and Accessories, Argon Coagulation Units and Accessories, Electrode Handles, Active Electrodes and Instruments, Monopolar and Bipolar Forceps, Endoscopic and Laparoscopic Instruments, Instruments for Vessel Sealing, Neutral Electrodes and Bipolar Scissors**

The Certification Body of TÜV SÜD Product Service GmbH certifies that the company mentioned above has established and is maintaining a quality management system, which meets the requirements of the listed standard(s). All applicable requirements of the testing and certification regulation of TÜV SÜD Group have to be complied with. For details and certificate validity see: [www.tuvsud.com/ps-cert?q=cert:Q5 016316 0021 Rev. 01](http://www.tuvsud.com/ps-cert?q=cert:Q5_016316_0021_Rev.01)

Report No.: 713198949

Valid from: 2021-02-22

Valid until: 2022-02-28

Date, 2021-02-22



Christoph Dicks
Head of Certification/Notified Body

Certificate

No. Q5 016316 0021 Rev. 01

Applied Standard(s): EN ISO 13485:2016
Medical devices - Quality management systems -
Requirements for regulatory purposes
(ISO 13485:2016)
DIN EN ISO 13485:2016

Facility(ies): **BOWA-electronic GmbH & Co. KG**
Heinrich-Hertz-Strasse 4-10, 72810 Gomaringen, GERMANY

Design and development, production and distribution of sterile
and non-sterile medical devices:

Electrosurgical Units and Accessories,
Argon Coagulation Units and Accessories,
Electrode Handles,
Active Electrodes and Instruments,
Monopolar and Bipolar Forceps,
Endoscopic and Laparoscopic Instruments,
Instruments for Vessel Sealing and
Bipolar Scissors

Design and development and distribution of sterile
and non-sterile medical devices:

Neutral Electrodes

BOWA Polska Sp. zo. o.
Zlotkowo, ul. Obornicka 10, 62-002 Suchy Las, POLAND

Production of sterile and non-sterile medical devices:
Instruments for Vessel Sealing and
Neutral Electrodes

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