alsa apparecchi medicali

EXCELL NHP

ELETTROBISTURI ED ELETTROBISTURI CON GAS ARGON PER ALTA CHIRURGIA

DIATHERMY UNITS AND ARGON GAS ENHANCED DIATHERMY UNITS FOR MAJOR SURGERY

BISTOURIS ET BISTOURIS AVEC GAS ARGON POUR LA HAUTE CHIRURGIE

ELECTROBISTURÍES Y ELECTROBISTURÍES CON GAS ARGON PARA ALTA CIRUGÍA

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THE ELECTROSURGICAL UNITS EXCELL *NHP*

Thanks to the possibilities offered by the most recent micro-processors, the new models *Excell NHP* have been designed according to a "manufacturing philosophy" which privileges the easy and immediate comprehension of all the usage/regulation modes, and at the same time guarantees a wide range of performances, an absolute reproducibility and functioning personalization, as well as a maximum safety and reliability. The series is composed of three models for electro-surgery: *Excell NHP-400/D*, *Excell NHP-350/D*, and *Excell NHP-250/D*, which can all be connected to an independent Argon gas module; there are also two models for electro-surgery and electro-surgery with Argon gas: *Excell NHP-400/DA* and *Excell NHP-250/DA*.

100 FUNCTION MEMORIES

In order to help the operators and assure the perfect personalization of the performances, the models *Excell NHP* allow memorizing and then selecting through a simple button 100 complete functioning programs, which include pre-set programs for the general or the laparoscopic surgery, the endoscopic surgery under liquid, the flexible endoscopic surgery, as well as the simple bipolar mode.
For the models equipped with the Argon gas function, there are also the programs for the usage in general or laparoscopic surgery, as well as the programs for flexible endoscopy with or without the Argon gas.

A WIDE RANGE OF CURRENTS TO SATISFY ALL THE OPERATING NEEDS

The *Excell NHP* units have got 17 currents: 10 for the monopolar usage, and 7 for the bipolar usage.

Three for the monopolar cut, with self regulation ***ADC System – constant power*** and ***Starting impulse control:***

- ***Pure,*** non modulated sinusoidal current for the cut without any coagulating effect.
- ***Blend 1,*** modulated and pulsed sinusoidal current for the cut with normal coagulating effect.
  These 2 currents, thanks to specific auto-check software, are perfect for all kinds of usage: normal or specialist surgery, laparoscopy, TUR and vaporization, as well as all the applications under liquid.
- ***Blend 2,*** modulated and pulsed current for the cut with a strong coagulating effect *spray* type for surgery or laparoscopy.

Three for the monopolar cut, with self regulation ***APC System – constant voltage*** and ***Starting impulse control:***

- ***Auto Pure,*** non modulated sinusoidal current for the cut without any coagulating effect.
- ***Auto Blend,*** modulated and pulsed sinusoidal current for the cut with normal coagulating effect.
- ***Auto Endo,*** current with alternating phases of cut and coagulation for the flexible endoscopy.
  These currents are perfect for the normal surgery, the laparoscopy and the flexible endoscopy, notably when a very delicate effect with a minimum superficial necrosis is desired.

Four for the monopolar coagulation with self regulation ***ADC System – constant power:***

- ***Fulg Forced,*** modulated high voltage current with an optimum superficial and deep efficacy, which is suitable both for the direct usage with an active small section electrode and for the indirect usage through an insulated coagulation forcep.
  It is perfect also to obtain a cut with a strong coagulating effect.
- ***PinPoint-Contact,*** modulated medium voltage current, which is very similar to the previous one, but with a more delicate effect.
- ***Soft,*** modulated low voltage current with a strong deep effect, and no superficial carbonization.
  It is perfect for the direct usage with coagulation electrodes, or for the indirect usage through an insulated coagulation forceps.
- ***Spray,*** modulated and pulsed very high voltage current, with a very strong superficial effect and a low penetration into the tissues. It is perfect for the direct usage without any contact, with small section electrodes.

Two for the bipolar cut, with self regulation ***ADC System – constant power*** and ***Starting impulse control:***

- ***Pure,*** non modulated pulsed sinusoidal current for the cut.
- ***Blend,*** modulated and pulsed sinusoidal current for the cut with coagulating effect. With laparoscopic forceps, it is also suitable to obtain a strong coagulating effect only.
  Thanks to some specific auto-check software, these currents are perfect for all kinds of usage: normal or specialist surgery, laparoscopy, TUR and all other bipolar applications with saline solution.

Two for the bipolar coagulation, with self regulation ***APC System – constant voltage:***

- ***Micro CV,*** non modulated low voltage current for very delicate coagulations with *Soft / Micro Precise* effect, a minimum superficial carbonization, and no sticking on the tissues.
- ***Micro Auto,*** identical to *Micro CV*, but with *Auto Start / Auto Stop Impedance Sensing* and *Start Delay* adjustable from 0 to 5 sec. It is perfect for the usage with manual activation, and no need of special forceps with switch device.

Two for the bipolar coagulation, with self regulation ***ADC System – constant power:***

- ***Micro HC,*** current with *Standard Forced* effect in order to rapidly coagulate the vascularized points and the bleedings during the procedures with saline solution, and use instruments with tips of big dimensions.
- ***Macro,*** modulated and pulsed current with a stronger effect than the *Micro HC* current.

One for the coagulation / sealing of big vessels, with self regulation ***ADC System – constant power:***

- ***Seal HC,*** pulsed current to coagulate and close the big vessels with a minimum superficial carbonization and no sticking of the tissues. It can be activated through a pedal foot-switch, and thanks to the *Auto Stop Impedance Sensing* system it is very efficacious and easy to use, in laparoscopy too.

COMPLETE OUTPUT POWER CONTROL

In order to guarantee the best possible efficiency and the minimum side effects, all the output currents are completely self controlled through a micro-processor with three different systems:

- ***ADC System – constant power***, which automatically adjusts the powers by verifying the voltage and the current, according to a continuous feed-back in real time (7,000 checks/sec) between the unit and the patient tissues, as well as between the electrode and its rapidity of sliding on the tissues. This system is also necessary to intervene in an efficacious way on many types of tissue or under liquid with the lowest possible powers.
- ***APC System – constant voltage***, which automatically adjusts the powers, by keeping the voltage – and so the currents electric arc – constant, according to a continuous feed-back in real time (7,000 checks/sec) between the unit and the patient tissues, as well as between the electrode and its rapidity of sliding on the tissues. This system is also necessary to intervene in an efficacious and very delicate way on the operating point with the minimum superficial necrosis.
- ***Starting impulse control***, which electronically checks the starting pulse of the cut currents, in order to guarantee the maximum efficacy with the lowest possible powers.

ALL POSSIBLE USAGE MODES, TWO MONOPOLAR OUTPUTS, AND TWO BIPOLAR OUTPUTS

All models are equipped with: two monopolar outputs, which can be used at the same time by two different operators through the *Twin activation* device; two bipolar outputs, which are very useful and common today, notably in laparoscopy.

The two monopolar outputs can be activated by three modes:

- Both of them by the hand-switches placed on the electrodes holder handles, or by the double pedal foot-switch.
- One by the hand-switches placed on the electrodes holder handle, and the other by the double pedal foot-switch.

For the usage with the Argon gas module, into the models *Excell NHP-400/DA* and *Excell NHP-250/DA*, the two outputs can also be activated as follows:

- Both of them by the double pedal foot-switch, or both of them by the hand-switches placed on the electrodes holder handles: one is for electro-surgery, and the other one for electro-surgery with Argon gas.

The two bipolar outputs can always be activated independently from the monopolar ones, by three modes:

- For the cut or the coagulation, by the double pedal foot-switch.
- For the coagulation, by selecting the *Micro Auto* current, through the automatic *Auto Start / Auto Stop Impedance Sensing*, with a starting delay adjustable from 0 to 5 sec.
- For the coagulation and the sealing of the big vessels, by selecting the *Seal HC* current, with activation by the pedal foot-switch and automatic *Auto Stop Impedance Sensing*.

BETTER PERFORMANCES, MAXIMUM SAFETY

The *Excell* models are equipped with an auto-check system at double microprocessor that is the ***Master / Sleeve System with two Microprocessors at 32 bit***. It is characterized by an interconnection in feed-back, a serial communication, as well as a double memorization of the functioning data with validity control CRC at 16 bit, which has got a big operational capacity and can optimize the execution rapidity of all the different functions, which are necessary to guarantee the maximum safety and functionality.

***Auto-Check*, complete auto-check of the hardware / software by:**

- ***Main Auto-Check***, main auto-diagnosis procedure at the switching-on.
- ***Standard Auto-Check*,** continuous check of all the functioning parameters during the usage.
- Immediate interruption of the functioning with contemporary alarm signal for the operators through specific ***Error Codes***, just in case the auto-diagnosis systems find out some problems or damages to the ***General Error Control***, that is the general functioning / activation errors, or to the ***Output Error Control***, that is the delivery of the powers, in order to avoid the risk of a sudden and dangerous output of a power which is higher than the selected one.
- Memorization of the last 32 ***Error codes***, to favour the checks and the technical assistance.

***Output Power Control*, the complete auto-check of the output powers (see above).**
***HF Leakage Control*, check of the high frequency leakage currents to earth.**
The system, through a specific circuit, always verifies the leakage currents to hearth, and, just in case of dangerous situations - like the contact between the patient and the metallic parts of the operating table -, it keeps them within the safety limits, by automatically decreasing the output powers and by giving an alarm signal.

Argon section Auto-Check* into the models *Excell NHP-400/DA* and *Excell NHP-250/DA
At the switching on, the Argon section performs a complete auto-diagnosis on its circuit about what follows: mains supply, pressure, loss or absence of gas.

ELECTROSURGERY WITH ARGON GAS

The models *Excell NHP-400/D*, *Excell NHP-350/D* and *Excell NHP-250/D* can be used with an external module for the Argon gas, while the models *Excell NHP-400/DA* and *Excell NHP-250/DA* are already complete with all the necessary functions for the electro-surgical cut and coagulation with this type of gas; therefore, they guarantee big advantages if compared to the systems composed by the electro-surgical unit and the separate Argon module.
The absence of interface devices, a bigger simplicity of functioning, the possibility to connect and use at the same time the accessories for electro-surgery and electro-surgery with Argon gas, the automatic output of the right modulated and pulsed *spray* coagulation when the Argon gas coagulation is activated independently from the type of coagulation selected for the simple electro-surgery, as well as the self-compensation of the gas flow ***Constant Flow System*** according to the diameter of the electrodes, with a perfect control of the penetration depth, make this technical "solution" very efficacious and appreciated by all the operators who, in general or specialist surgery, in laparoscopy or in flexible endoscopy, ask for those particular effects that are typical of the Argon gas coagulation. Among them, we can remember the rapid haemostasis of big bleeding areas without any contact nor sticking of the electrode on the tissues, a minimum deep effect (max. 3mm), a low risk of perforation of the tissues, and finally the absence of smokes and smells.

NEUTRAL ELECTRODE CONTROL CIRCUIT "NPCC SYSTEM"

The *Excell* models are equipped with a circuit that can verify the connection / contact of the neutral electrodes "*non Split*" type with a single section and "*Split*" type with a double section.
With the "*non Split*" electrodes, the system checks the right connection of the cable: if it is broken / non well connected, the circuit interrupts the delivery of the power and gives a luminous acoustic alarm signal.
With the "*Split*" electrodes, the system also checks the quality of the contact between the electrode and the patient tissues, by giving progressive alarm signals. If only 80% of the adult standard electrode surface is well connected, it gives the first luminous alarm signal; if the good contact of the electrode decreases to 50%, it gives another luminous alarm signal and automatically reduces the output power to max. 200W. Finally, if the contact is dangerous or the cable is broken / non well connected, the circuit interrupts the delivery of the power with a complete acoustic and luminous alarm signal.

VERY EASY TO USE

The control panels, which are completely smooth to guarantee the maximum cleaning, are divided into coloured areas that identify all the different functions and contain the selection / regulation devices, the luminous signals of activation or alarm, as well as all the visible displays which show the selected powers to the operators.
In order to favour the connection of the accessories, all the outputs are equipped with luminous indicators that light according to the selected functioning modes.

STATE-OF-THE-ART MANUFACTURING TECHNOLOGY

The manufacturing technology has been studied with extreme care, in order to guarantee the maximum reliability. The generator of the high frequency currents is ***Mosfet powered damped oscillator with switching supply*** type; it has no problem of heating for a usage without limits of time. The unit has got interchangeable boards to favor the technical assistance, and before entering into the market it must follow severe test procedures, with 100 functioning hours at maximum power. In order to facilitate the maintenance, the machine memorizes the 32 last Error Codes, and it is equipped with a state-of-the-art software system which allows its on-site calibration by using the front panel only.

ON-SITE CALIBRATION AND UPGRADE SOFTWARE TO GUARANTEE VERY HIGH PERFORMANCES

Thanks to the new software system, the units can be calibrated on-site, by using the front panel only; moreover, they have been studied to allow an eventual future updating of the software technology, through a simple serial port connected to a PC.

FOOT-SWITCH PEDALS

The choice of the pedal foot-switches is extremely flexible, according to the operators' preferences. As a matter of fact, the *Excell* units can be used with one double pedal foot-switch, which allows the activation of the monopolar or bipolar functions, and with a second double pedal foot-switch, which is indicated for the independent activation of the bipolar functions only.

ELIMINATION AND FILTERING OF THE SMOKES

The units can be equipped with automatic activation aspirators that guarantee the efficacious and silent elimination of smokes or electro-surgical aerosol; they reduce not only the risks of a viral and bacterial contamination into the whole operating theatre, but they also solve the big problem of the visibility on the operating field, which is fundamental for the surgeons, notably during the laparoscopic procedures.

EXCELL NHP 400/D

H 23/SE

H 10/AB

H 25

EXCELL NHP 400/DA

Electronic Generator compliant with: IEC 601-1 and IEC 60601-2-2 Standards.
Classification 93/42 EEC: IIB - **Approval 93/42 EEC:** 187 MDD-IMQ 0051.
Electromagnetic Compatibility: Unit is compliant with IEC 60601-1-2,
Test report IMQ nr. 80SF00709/1, 80SF00709/2.
Classification and Type IEC 601-1: Class I, Type CF.
Typical LF leakage currents: on the patient: 4 µA = 0.004mA,
into the enclosure: 1 µA = 0.001mA, to earth: 30 µA = 0.3mA.
Output Circuit according to IEC 60601-2-2:
"Floating" insulated at low and high frequencies, protected against the use of the defibrillator.
Typical high frequency leakage currents: 100mA.

ALSA Quality System: Approved ISO 9001:2000 and ISO 13485:2003.

Monopolar and bipolar working frequency: 440 kHz ± 5%.

Functioning Control System: with double microprocessor.

Master/Sleeve System with 2 microprocessors at 32 bit with interconnection in feed-back with serial communication and double memorization of the functioning data with validity control CRC at 16 bit, which performs what follows:

***Auto-Check*, complete self control of the hardware / software with:**

- ***Main Auto-Check***, main auto-diagnosis procedure at the switching on.
- ***Standard Auto-Check***, continuous auto-diagnosis during the whole functioning.
- Immediate interruption of the functioning (in less than 100millisec) with contemporary alarm signal to the operators through specific ***Error Codes***, when the auto-diagnosis systems find out some problems or failures about:
  a. ***General Error Control***, that is the general functioning or the activation errors.
  b. ***Output Error Control***, that is the delivery of the powers, in order to eliminate the risk of a sudden and dangerous output of a power which is higher than the selected one.
- Memorization of the 32 last ***Error Codes*** in order to facilitate the check and the technical assistance.

***Output Power Control*, complete self regulation by microprocessors of the output powers through three different modes:**

- ***ADC System – constant power***, which automatically auto-adjusts the powers by verifying the voltage and the current, according to a continuous feed-back in real time (7,000 checks/sec) between the unit and the patient tissues, as well as between the electrode and its rapidity of sliding on the tissues. This system is also necessary to intervene in an efficacious way on many types of tissue or under liquid with the lowest possible powers.
- ***APC System – constant voltage***, which automatically auto-adjusts the powers, by keeping the voltage – and so the currents electric arc - constant, according to a continuous feed-back in real time (7,000 checks/sec) between the unit and the patient tissues, as well as between the electrode and its rapidity of sliding on the tissues. This system is also necessary to intervene in an efficacious and very delicate way on the operating point with the minimum superficial necrosis.
- ***Starting impulse control***, which electronically checks the starting pulse of the cut currents, in order to guarantee the maximum efficacy with the lowest possible powers.

***HF Leakage control*, check of the high frequency leakage currents to earth.**

The system, through a specific circuit, always verifies the leakage currents to hearth, and, just in case of dangerous situations, it keeps them within the safety limits, by automatically decreasing the output powers and by giving an alarm signal.

Argon section Auto-Check*, into the models *Excell NHP-400/DA* and *Excell NHP-250/DA*, *complete auto-check of the Argon gas circuit.

At the switching on, the Argon section performs a complete auto-diagnosis on its circuit about what follows: mains supply, pressure, loss or absence of gas.

Functioning memorization.

100 memorisable programs; among them, some pre-set programs for general or laparoscopic surgery, endoscopic surgery under liquid and flexible endoscopic surgery, as well as for the bipolar use only.
Into the models *Excell NHP-400/DA* and *Excell NHP-250/DA*, which are already equipped with the Argon gas functions, there are also pre-set programs for the usage in general or laparoscopic surgery and flexible endoscopy with or without the Argon gas.

Micro / macro powers adjusting by push-buttons with low / fast changing and steps.

Monopolar: 0/30W=1W, 30/100W=2W, 100/200W=5W, from 200W=10W.
Bipolar: 0/10W=0,5W, 10/30W=1W, 30/100W=2W, from 100W=5W.
Selected powers control: by displays.

Outputs, activations.

All the models are equipped with two monopolar outputs and two bipolar outputs.

The two monopolar outputs can be used at the same time by two different operators with *Twin activation* device, as follows:

- Both of them by the double pedal foot-switch.
- Both of them by the hand switches placed on the electrodes holder handles.
- One by hand switches and one by the double pedal foot-switch.

For the usage with the Argon gas, into the models *Excell NHP-400/DA* and *Excell NHP-250/DA*, the two outputs can also be activated as follows:

- Both of them by the double pedal foot-switch: one for the electro-surgery, and one for the electro-surgery with Argon gas.
- Both of them by the hand switches placed on the electrodes holder handles: one for the electro-surgery, and one for the electro-surgery with Argon gas.

The two bipolar outputs can be always activated independently from the monopolar ones, through three modes:

- For the cut or the coagulation, by the double pedal foot-switch.
- For the coagulation, with the *Micro Auto* current, by the automatic *Auto Start / Auto Stop* ***Impedance Sensing*** device and starting delay adjustable from 0 to 5 sec.
- For the coagulation / sealing of big vessels, with the *Seal HC* current, by the pedal foot-switch and automatic *Auto Stop* ***Impedance Sensing***.

Foot-switches.

The *Excell* units can be equipped with:
One double pedal foot-switch, selectable for the monopolar or bipolar functions.
Two double pedal foot-switches: one for the monopolar functions, and one for the bipolar functions. The pedals are compliant with IEC 60601-2-2 Standard, and have an extra protection against the involuntary activation; they are waterproof (IPX7), and have a low tension supply for medical safety 12VDC.

Neutral electrode safety circuit *NPCC System.*

Complete control on the connection of the neutral electrodes "*non split*" type with one single section, and "*split*" type with double section.

With the "*non split*" electrodes, it checks the status of the cable and its connection.

- If the cable is broken / non well connected, the circuit interrupts the delivery of the power and gives a luminous acoustic alarm.

With the "*split*" electrodes, it also checks the contact between the electrode and the patient tissues.

- If only 80% of an adult standard electrode is well connected, the circuit gives a first luminous alarm signal. If the contact decreases to 50%, it gives another luminous alarm signal, and automatically reduces the output power to max. 200W. Finally, if the contact is dangerous or the cable is broken / non well connected, it interrupts the delivery of the power by giving a complete acoustic and luminous alarm signal.

Colour codes and luminous or acoustic signals compliant with IEC 60601-2-2.

Cut: hand switches or pedal foot-switches (yellow),
activation (yellow light / low tone).
Coagulation: hand switches or pedal foot-switches (blue),
activation (blue light / high tone).
Neutral electrode alarm (red light / high and intermittent tone, not adjustable).

Mains: 230/115V ± 10% ~ 50/60Hz.
Absorption at 230V: max power 3.6A=828VA, Stand-by 0.4A=92VA.
Enclosure: protected against the penetration of liquids, according to IEC 60601-2.
Cooling: by convection, without fan.
Equipotential Connection: standard plug DIN 42801.
Software Updating: yes, through a serial port connected to a PC.
On-site Calibration: yes, special software.
Dimensions and Weight (LxDxH)
NHP 400/D, NHP 350/D, NHP 250/D: 38x35x16cm. – 15kgs.
NHP 400/DA, NHP 250/DA: 38x38x16cm. – 16kgs.

Facility to use an external module for Argon gas
The models: *NHP 400/D, NHP 350/D, NHP 250/D.*

Argon gas section (only into the models *Excell NHP 400/DA* and *Excell NHP 250/DA*).

Mains: both with 1 or 2 cylinders of 5lt. and with a centralized system.
Max. flow and gas pressure: 15lt/min. At the entrance: 2.5atm; during the functioning: 1atm.
Control of the flow through *Constant flow System*: from 1 to 15lt/min., through an electronic sensor with adjusting buttons, visual check on the bar-led, automatic auto-compensation according to the used electrode, and alarm just in case of absence of gas.
Control of the pressure into the circuit *Safety Gas System*: Reducer of the pressure on the cylinder; Internal reducer of the pressure with safety valve; Pressure sensor connected to the electronic control system with Auto-Check when the gas section is activated.
Protection of the delivered gas flow: The output device for the gas is equipped with antibacterial filter.

EXCELL NHP SERIES

PRESTAZIONI / PERFORMANCES / PERFORMANCES / PRESTACIONES

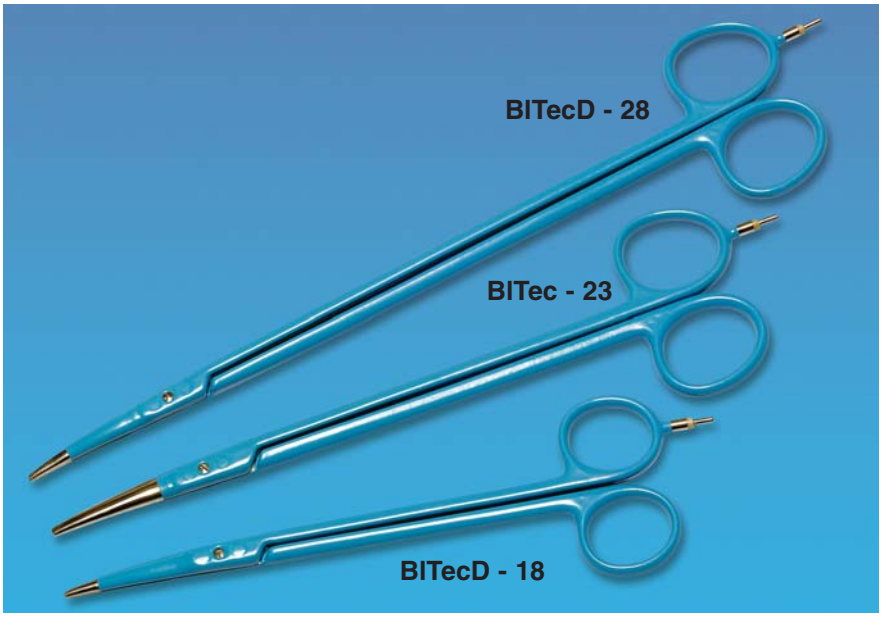
POTENZE EROGATE – W, CARICHI NOMINALI – Ω, TENSIONI PICCO/ PICCO A VUOTO – Vpp
FATTORI DI CRESTA – CF, MODULAZIONI – M, DUTY CYCLE – DC

OUTPUT POWERS – W, NOMINAL LOADS – Ω, OPEN CIRCUIT PEAK TO PEAK VOLTAGES – Vpp,
CREST FACTORS – CF, MODULATIONS – M, DUTY CYCLE – DC

PUISSANCES EMISES – W, CHARGES NOMINALES – Ω, TENSIONS PIC A PIC A VIDE – Vpp,
FACTEURS DE CRETE – CF, MODULATIONS – M, DUTY CYCLE – DC

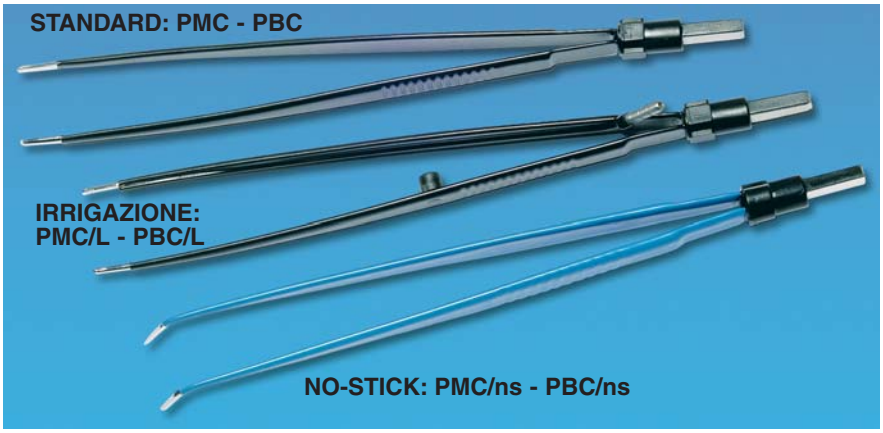
POTENCIAS EMITIDAS –W, CARGAS NOMINALES – Ω, VOLTAJES PICO PICO DE VACIO – Vpp,
FACTORES DE CRESTA – CF, MODULACIONES – M, DUTY CYCLE – DC

Correnti monopolari e sistemi elettronici di autoregolazione Monopolar currents and self regulation electronic systems Courants monopolaires et systèmes électroniques d'auto réglage Corrientes monopolares y sistemas electrónicos de autocontrol	**Excell 400/D NHP**	**Excell 350/D NHP**	**Excell 250/D NHP**	**Excell 250/DA NHP**	**Excell 400/DA NHP**
PURE - Taglio / Cut / Coupe / Corte ***ADC System - Constant Power with feed-back unit/tissues Starting Impulse Control***	400 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	350 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	280 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	280 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	400 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no
BLEND 1 -Taglio coagulante / Blend Cut Coupe coagulante / Corte coagulante ***ADC System - Constant Power with feed-back unit/tissues Starting Impulse Control***	300 W – 350 Ω 3600 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	300 W – 350 Ω 3600 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	280 W – 350 Ω 3540 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	280 W – 350 Ω 3540 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	300 W – 350 Ω 3600 Vpp – CF: 2.3 M: 29 kHz – DT: 65%
BLEND 2 -Taglio coagulante / Blend Cut Coupe coagulante / Corte coagulante ***ADC System - Constant Power with feed-back unit/tissues Starting Impulse Control***	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%
AUTO PURE - Taglio / Cut / Coupe / Corte ***APC System - Constant Voltage with feed-back unit/tissues Starting Impulse Control***	400 W – 350 Ω 1470 Vpp – CF: 1.6 M: no – DT: no	350 W – 350 Ω 1350 Vpp – CF: 1.6 M: no – DT: no	280 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	280 W – 350 Ω 3450 Vpp – CF: 1.6 M: no – DT: no	400 W – 350 Ω 1470 Vpp – CF: 1.6 M: no – DT: no
AUTO BLEND - Taglio coagulante / Blend Cut Coupe coagulante / Corte coagulante ***APC System - Constant Voltage with feed-back unit/tissues Starting Impulse Control***	300 W – 350 Ω 1930 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	350 W – 350 Ω 1930 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	280 W – 350 Ω 3540 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	280 W – 350 Ω 3540 Vpp – CF: 2.3 M: 29 kHz – DT: 65%	300 W – 350 Ω 1930 Vpp – CF: 2.3 M: 29 kHz – DT: 65%
AUTO ENDO - Taglio coagulante / Blend Cut Coupe coagulante / Corte coagulante ***APC System - Constant Voltage with feed-back unit/tissues Starting Impulse Control***	250 W – 350 Ω 1890 Vpp – CF: 2.2 50% Pure / 50% Coag	250 W – 350 Ω 1710 Vpp – CF: 2.2 50% Pure / 50% Coag	220 W – 350 Ω 1880 Vpp – CF: 2.2 50% Pure / 50% Coag	220 W – 350 Ω 1880 Vpp – CF: 2.2 50% Pure / 50% Coag	250 W – 350 Ω 1890 Vpp – CF: 2.2 50% Pure / 50% Coag
FULG FORCED - Coag Fulguration ***ADC System - Constant Power with feed-back unit/tissues***	150 W – 350 Ω 4700 Vpp – CF: 4.5 M: 78 kHz – DT: 35%	150 W – 350 Ω 4700 Vpp – CF: 4.5 M: 78 kHz – DT: 35%	150 W – 350 Ω 4700 Vpp – CF: 4.5 M: 78 kHz – DT: 35%	150 W – 350 Ω 4700 Vpp – CF: 4.5 M: 78 kHz – DT: 35%	150 W – 350 Ω 4700 Vpp – CF: 4.5 M: 78 kHz – DT: 35%
PIN POINT CONTACT - Coag contact ***ADC System - Constant Power with feed-back unit/tissues***	250 W – 250 Ω 3460 Vpp – CF: 2.6 M: 29 kHz – DT: 50%	250 W – 250 Ω 3460 Vpp – CF: 2.6 M: 29 kHz – DT: 50%	250 W – 250 Ω 3460 Vpp – CF: 2.6 M: 29 kHz – DT: 50%	250 W – 250 Ω 3460 Vpp – CF: 2.6 M: 29 kHz – DT: 50%	250 W – 250 Ω 3460 Vpp – CF: 2.6 M: 29 kHz – DT: 50%
SOFT - Coag soft ***ADC System - Constant Power with feed-back unit/tissues***	280 W – 250 Ω 3440 Vpp – CF: 2.5 M: 29 kHz – DT: 56%	280 W – 250 Ω 3440 Vpp – CF: 2.5 M: 29 kHz – DT: 56%	280 W – 250 Ω 3440 Vpp – CF: 2.5 M: 29 kHz – DT: 56%	280 W – 250 Ω 3440 Vpp – CF: 2.5 M: 29 kHz – DT: 56%	280 W – 250 Ω 3440 Vpp – CF: 2.5 M: 29 kHz – DT: 56%
SPRAY - Coag spray ***ADC System - Constant Power with feed-back unit/tissues***	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%	140 W – 600 Ω 7600 Vpp – CF: 8,1 M: 19 kHz – DT: 9%
Argon Coag				**SPRAY**+ ARGON GAS	**SPRAY**+ ARGON GAS
Correnti bipolari e sistemi elettronici di autoregolazione Bipolar currents and self regulation electronic systems Courants bipolaires et systèmes électroniques d'auto réglage Corrientes bipolares y sistemas electrónicos de autocontrol	**Excell 400/D NHP**	**Excell 350/D NHP**	**Excell 250/D NHP**	**Excell 250/DA NHP**	**Excell 400/DA NHP**
PURE - Taglio / Cut / Coupe / Corte ***ADC System - Constant Power with feed-back unit/tissues Starting Impulse Control***	160 W – 300 Ω 850 Vpp – CF: 1.5 M: no – DT: no	160 W – 300 Ω 850 Vpp – CF: 1.5 M: no – DT: no	160 W – 300 Ω 850 Vpp – CF: 1.5 M: no – DT: no	160 W – 300 Ω 850 Vpp – CF: 1.5 M: no – DT: no	160 W – 300 Ω 850 Vpp – CF: 1.5 M: no – DT: no
BLEND 1 -Taglio coagulante / Blend Cut Coupe coagulante / Corte coagulante ***ADC System - Constant Power with feed-back unit/tissues Starting Impulse Control***	130 W – 300 Ω 1000 Vpp – CF: 1.8 M: 29 kHz – DT:75%	130 W – 300 Ω 1000 Vpp – CF: 1.8 M: 29 kHz – DT:75%	130 W – 300 Ω 1000 Vpp – CF: 1.8 M: 29 kHz – DT:75%	130 W – 300 Ω 1000 Vpp – CF: 1.8 M: 29 kHz – DT:75%	130 W – 300 Ω 1000 Vpp – CF: 1.8 M: 29 kHz – DT:75%
MICRO CV - Coag micro precise ***APC System - Constant Voltage with feed-back unit/tissues***	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no
MICRO HC - Coag micro precise ***ADC System - Constant Power with feed-back unit/tissues***	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no
MICRO AUTO - Coag micro precise Automatic Start/Stop ***APC System - Constant Voltage with feed-back unit/tissues***	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 450 Vpp – CF: 1.7 M: no – DT: no
MACRO - Coag standard macro ***ADC System - Constant Power with feed-back unit/tissues***	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 760 Vpp – CF: 1.7 M: no – DT: no
SEAL HC - Coag macro ***ADC System - Constant Power with feed-back unit/tissues***	130 W – 100 Ω 710 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 710 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 710 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 710 Vpp – CF: 1.7 M: no – DT: no	130 W – 100 Ω 710 Vpp – CF: 1.7 M: no – DT: no



Forbici bipolari isolate: **BITec** con lame standard - **BITecD** con lame delicate (tutte isolate eccetto le punte).
Insulated bipolar scissors: **BITec** with standard blades - **BITecD** with delicate blades (all insulated except the tips).
Ciseaux bipolaires isolées: **BITec** avec lames standard - **BITecD** avec lames délicates (isolées sauf les pointes).
Tijeras bipolares aisladas: **BITec** con hojas estándard - **BITecD** con hojas delicadas (todas aisladas excepto las puntas).

Pinze bipolari isolate per coagulazione/chiusura di grossi vasi: **POWER GRIP mod. LGF** con punte "large grasping", **BCS** con e senza forbici, **BC** senza forbici.
Insulated bipolar forceps for coagulation/sealing of big vessels: **POWER GRIP mod. LGF** with "large grasping" tips, **BCS** with and without scissors, **BC** without scissors.
Pinces bipolaires isolées pour la coagulation/fermeture de gros vases: **POWER GRIP mod. LGF** avec des pointes "large grasping", **BCS** avec et sans ciseaux, **BC** sans ciseaux.
Pinzas bipolares aisladas para coagulación/cierre de vasos gruesos: **POWER GRIP mod. LGF** con puntas "large grasping", **BCS** con y sin tijeras, **BC** sin tijeras.



Pinze bipolari isolate: **PMC - PBC** standard, **PMC/L - PBC/L** con irrigazione, **PMC/ns - PBC/ns** con punte no-stick.
Insulated bipolar forceps: **PMC - PBC** standard, **PMC/L - PBC/L** with irrigation, **PMC/ns - PBC/ns** with no-stick tips.
Pinces bipolaires isolées: **PMC - PBC** standard, **PMC/L - PBC/L** avec irrigation, **PMC/ns - PBC/ns** avec pointes no-stick.
Pinzas bipolares aisladas: **PMC - PBC** estándard, **PMC/L - PBC/L** con irrigación, **PMC/ns - PBC/ns** con puntas no-stick.

UNITS AND STANDARD SET OF ACCESSORIES

B950 **EXCELL NHP 400/D**, without accessories
B960 **EXCELL NHP 350/D**, without accessories
B970 **EXCELL NHP 250/D**, without accessories
B980 **EXCELL NHP 400/DA**, without accessories
B990 **EXCELL NHP 250/DA**, without accessories
B610/A **SET OF STANDARD ACCESSORIES** as follows:
1 DS/E Double waterproof foot-switch pedal
1 NP/A Stainless steel neutral electrode for adult - cable 2.5mt. long
2 MPE/E Sterilizable electrodes-holder handle, cable 3.5mt. long
1 SEL/E Composed by: **2 E1** - Straight knife (blade) electrode, **2 E5** - Thick needle electrode, **1 E7** - Thin needle electrode, **1 E12** - Straight ball electrode Ø 2.5 mm., **2 E14** - Straight ball electrode Ø 4mm.
B610/B **SET OF STANDARD ACCESSORIES** same as B610/A but with flexible neutral electrode made of conductive rubber for adult NP/GA
B610/P Ditto, but with paediatric neutral electrode NP/GP

GENERAL LIST OF ACCESSORIES

HANDLES FOR USE BY FOOT-SWITCH PEDALS
MPE/E Handle, cable 3.5mt. long, sterilizable
MPE/E5 Ditto, cable 5mt. long

HAND-SWITCH HANDLES
MPE/CMS Double push-button handle with knife electrode, cable mt.3 (100 times sterilizable)
MPE/CMS5 Ditto, cable mt.5
MP/CM Ditto, disposable type, cable mt 3 (*)

ACTIVE ELECTRODES, *made of stainless steel, insulated stem Ø 2,3÷2.4mm. sterilizable*

SHORT TYPE, STEM 70MM. LONG
E1 Straight knife (blade) electrode
E1/I Totally insulated except final 5 mm. straight knife (blade) electrode
E3 Angled knife (blade) electrode
E1/L Straight lancet electrode
E3/L Ditto, angled
E5 Straight thick needle electrode
E6 Ditto, angled
E7 Straight thin needle electrode
E7/I Totally insulated except final 5 mm straight thin needle electrode
E8 Angled thin needle electrode
E10 Very fine needle electrode, Ø 0.40mm.
E12 Straight ball electrode Ø 2.5 mm.
E13 Ditto, angled.
E14 Straight ball electrode Ø 4 mm.
E15 Ditto, angled.
E16 Straight ball electrode Ø 6 mm.
E17 Ditto, angled.
E18 Wire diamond loop electrode, 5x10 mm.
E19 Ditto, 10x10mm.
E21 Round wire loop electrode Ø 5 mm.
E23 Ditto, Ø 10mm.
E25 Ditto, Ø 15mm.
E23/N Round ribbon loop electrode Ø 10 mm.
E25/N Ditto, Ø 15mm.
E26 Plate electrode
EXT/15 Extension, 15cm. long for all the electrodes with stems Ø 2,3÷2.4 mm.

LONG TYPE, FLEXIBLE STEM 130MM. LONG
E40 Straight knife (blade) electrode
E40/I Totally insulated except final 5 mm. straight knife (blade) electrode
E41 Straight thick needle electrode
E42 Straight thin needle electrode
E42/I Totally insulated except final 5 mm straight thin needle electrode
E43 Round wire loop electrode Ø 5 mm.
E44 Ditto, Ø 10 mm.
E45 Ditto, Ø 15 mm.
E46 Straight ball electrode Ø 2.5 mm.
E47 Straight ball electrode Ø 4 mm.
E47/6 Straight ball electrode Ø 6 mm.

ELECTRODES FOR MICROSURGERY, STERILIZABLE
MID Reducer for needles (for all the electrode holders)
SAD Series of 12 needles Ø 0.10 mm.
SAD/1 Ditto, Ø 0.15 mm.
SAD/2 Ditto, Ø 0.20 mm.
SAD/3 Ditto, Ø 0.40 mm.

RE-USABLE NEUTRAL ELECTRODES
NP/A Stainless steel electrode for adult (cm. 25x12), cable 2.5 mt. long
NP/GA Electrode for adults (25x12cm.), flexible conductive rubber, cable 2.5 mt.
NP/GA5 Ditto, cable 5mt. long
NP/GP Ditto, pediatric type (18x8 cm.), cable 2.5 mt. long
NP/GP5 Ditto, cable 5mt. long
FGE Fixing belt for electrodes with 2 buttons (*)

DISPOSABLE, ADHESIVE, NEUTRAL ELECTRODES
CMS/E Re-usable connection cable 2.5 mt. long
CMS/E5 Ditto, cable 5 mt. long
EIP/DA Adhesive, no-Split single section, adult type (25pcs, each pack) (*)
EIP/SA Ditto, Split double section, adult type (25pcs, each pack) (*)
EIP/DP Adhesive, no-Split single section, paediatric type (25pcs. each pack) (*)
EIP/SP Ditto, Split double section, paediatric type (25pcs. each pack) (*)

INSULATED MONOPOLAR FORCEPS FOR COAGULATION, WHITHOUT CONNECTING CABLES TO THE UNIT, STERILIZABLE
PIC/1 Straight forceps (Cushing/Potts-Smith) ("grasping" tips 1mm. - L. 18cm.)
PIC/1-25 Ditto, L. 25cm.
PIC/2 Straight forceps (Cushing/Potts-Smith) ("grasping" tips 2mm. - L. 25cm.)

INSULATED MONOPOLAR FORCEPS FOR COAGULATION, WITH CONNECTING CABLES TO THE UNIT, STERILIZABLE
CPI Connecting cable for PMI, 3.5 mt.
CPI/5 Ditto, 5mt. long
PMI/1 Straight forceps (Cushing/Potts-Smith) ("grasping" tips 1mm. - L. 18cm.)
PMI/1-20 Ditto, 20cm. long
PMI/1-25 Ditto, 25cm. long
PMI/2 Straight forceps (Cushing/Potts-Smith) ("grasping" tips 2mm. - L. 25cm.)
PMI/B Bayonet forceps (Jansen/Yasargil) ("grasping" tips 2mm. - L. 20cm.)

HAND-SWITCH INSULATED MONOPOLAR FORCEPS FOR COAGULATION, WITH CONNECTING CABLE TO THE UNIT, STERILIZABLE
PMI/BJ21 Bayonet forceps, cable 3.5mt. long ("grasping" tips 2mm. - L. 21cm.)
PMI/PJ21 Straight forceps, cable 3,5mt. long ("grasping" tips 2mm. - L. 21cm.)
PMI/PJ24 Ditto ("grasping" tips 2mm. - L. 24cm.)

MONOPOLAR ACCESSORIES FOR LAPAROSCOPY, please ask for specific detail.

CONNECTING CABLES FOR INSTRUMENTS FOR LAPAROSCOPY
CPE Connecting cable for instruments with male / female connector Ø 4 mm, mt.3,5
CPE/5 Ditto, L. mt. 5

CONNECTING CABLES FOR BIPOLAR FORCEPS/ELECTRODES AND FOR BIPOLAR HOOKS, FORCEPS, SCISSORS FOR LAPAROSCOPY, STERILIZABLE
CPB/E Connecting cables, 3mt.
CPB/E5 Ditto, 5mt. long

BIPOLAR HOOKS, FORCEPS AND SCISSORS FOR LAPAROSCOPY, please ask for specific detail

ACCESSORIES AND CABLES FOR FLEXIBLE ENDOSCOPY, please ask for specific detail.

INSULATED BIPOLAR FORCEPS AND RIGID ELECTRODES, STERILIZABLE

STANDARD FORCEPS FOR BIPOLAR COAGULATION
PMC/JR Straight forceps (Jeweler) (straight tips 0.5mm. - L. 11.5/12 cm.)
PMC/JC Ditto, angled tips
PMC/RS Straight forceps (Cushing/Potts-Smith) (straight tips 0.7mm. - L. 15.5/16 cm.)
PMC/CS Ditto, angled tips
PMC/R Straight forceps (Cushing/Potts-Smith) (straight tips 1mm. - L. 20cm.)
PMC/C Ditto, angled tips
PBC/R Straight forceps (Cushing/Potts-Smith) (straight tips 2mm. - L. 20cm.)
PBC/C Ditto, angled tips
PMC/R25 Straight forceps (Cushing/Potts-Smith) (straight tips 1mm. - L. 25cm.)
PMC/C25 Ditto, angled tips
PBC/R25 Straight forceps (Cushing/Potts-Smith) (straight tips 2mm. - L. 25cm.)
PBC/C25 Ditto, angled tips
PMC/RSB Bayonet forceps (Jensen/Yasargil) (straight tips 0.7mm. - L. 16.5/17cm.)
PMC/B Bayonet forceps (Jensen/Yasargil) (straight tips 1mm. - L. 20cm.)
PMC/BCD Ditto, angled tips down
PMC/BCU Ditto, angled tips up
PBC/B Bayonet forceps (Jensen/Yasargil) (straight tips 1mm. - L. 20cm.)
PBC/BCD Ditto, angled tips down
PBC/BCU Ditto, angled tips up
PMC/B25 Bayonet forceps (Jensen/Yasargil) (straight tips 1mm. - L. 25cm.)
PBC/B25 Bayonet forceps (Jensen/Yasargil) (straight tips 2mm. - L. 25cm.)

FORCEPS WITH IRRIGATION FOR BIPOLAR COAGULATION, please ask for specific detail
FORCEPS WITH NO-STICK TIPS FOR BIPOLAR COAGULATION, please ask for specific detail
RIGID ELECTRODES FOR BIPOLAR COAGULATION OF TURBINAL OR LARYNX, please ask for specific detail

BIPOLAR SCISSORS FOR SURGERY WITH THEIR CABLES, please ask for specific detail.

BIPOLAR CLAMPS FOR COAGULATION / SEALING OF BIG VESSELS WITH THEIR CABLES, please ask for specific detail.

BIPOLAR FORCEPS FOR COAGULATION / SEALING OF BIG VESSELS IN LAPAROSCOPY, please ask for specific detail

ADAPTORS FOR USING CABLES WITH NON ALSA STANDARD PLUG
RD5 For monopolar cables with plug Ø from 2 to 8 mm or Martin standard.
RD/BF For bipolar cables with double plug Ø 4 mm (international standard) or with plug Valleylab /Conmed standard.
RD/BF1 For bipolar cables with coaxial plug Ø 12,5 mm (Erbe/Storz standard)
RD/BF2 For bipolar cables with coaxial plug Ø 8 mm (Martin/Bertchold standard)

TROLLEYS, FOOT-SWITCH PEDALS, BOXES FOR ACCESSORIES
H23/SE Trolley angled with compartment for accessories, Dimensions: 45x45x74 cm. antistatic wheels, 2 with brakes
H10/AB Economic trolley with 2 shelves 40x40cm. antistatic wheels, 2 with brakes
H25 Trolley for electrosurgical unit and smoke evacuator. 3 shelves for units and foot-switch pedals, compartment for accessories. Dimensions: 50x60X100 cm. antistatic wheels, 2 with brakes
H26 Ditto, with compartment for gas cylinders (for mod. Excell NHP 400/DA e NHP 250/DA only)
DS/E Double foot-switch pedal, water-proof (IPX7)
DS/B Ditto, for bipolar activation only
BOX-TE Stainless steel round box for electrodes
BOX-RA Stainless steel rectangular box for accessories, 21x10x5 cm.

ACCESSORIES FOR ARGON GAS SURGERY
For models NHP 400/DA and NHP 250/DA

HAND-SWITCH HANDLE AND ELECTRODES FOR SURGERY / LAPAROSCOPY
AC/HANDLE Double push-button electrode-holder, sterilizable, cable 3.5mt.
AC/E25-C Rigid electrode for coagulation, 25mm. long, sterilizable
AC/E100-C Ditto, 100mm. long
AC/E320-C Ditto, 320mm. long (for laparoscopy only)
AC/E 320-H L Hook rigid electrode, mm. 320 long, sterilizable (for laparoscopy only)
AC/E40-A Rigid needle electrode, 40mm. long, sterilizable
AC/E100-A Idem, 100mm. long
AC/E40-L Rigid knife electrode, 40mm. long, sterilizable
AC/E100-L Ditto, 100mm. long

CABLE AND FLEXIBLE ELECTRODES / PROBES FOR FLEXIBLE ENDOSCOPY
AC/CABLE Connecting cable for flexible electrodes/probes, sterilizable, 3.5mt. long
ELECTRODES / FLEXIBLE PROBES: please ask for specific detail.

TROLLEY, GAS CYLINDER, PRESSURE REDUCER, BACTERIAL FILTER
H26 See above
B5 Argon gas cylinder, capacity 5lt (RD/P - Pressure reducer for cylinder)
ESU/TG Tube for gas input with quick-action coupling (for B5)
ESU/F Bacterial filter for gas output (ESU/FC - Metallic connector for filter)

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NHP/REV B - Edizione 03-2008

- È fatta riserva di apportare tutte le varianti a miglioria che si riterranno opportune, senza preavviso.
- The manufacturer has the right to change the specifications to improve the quality of the products without notice.
- La maison constructrice se reserve le droit d'apporter toutes les modifications nécessaries pour améliorer ses produits, sans préavis.
- El productor se reserva el derecho de aportar las modificaciones necesarias sin aviso.

(*) Possono non essere certificati CE0051.