

MEDICI



EQUIPMENT ELECTRONICS



ENDOMED



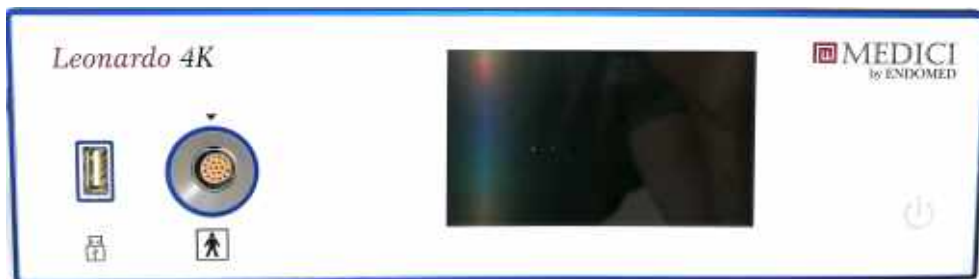


ENDOMIED

LEONARDO 4K 4K VIDEO CAMERA

FULL-HD INTEGRATED RECORDER

Advanced Image Enhancement



Original Image



Clarity Enhancement



Color Enhancement

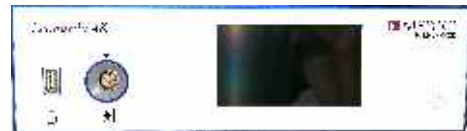


LEONARDO 4K is the latest version of the ultra high definition endoscopy camera which is able to offer a clear and sharp image. With the native progressive scan the LEONARDO 4K provides the sharpest details with incomparable natural color rendition at the highest spatial and temporal resolution. Even the finest variations in tissue structures are distinguishable. LEONARDO 4K will definitely enhance the capabilities of surgeons performing minimally invasive procedures.

 **MEDICI**
by ENDOMED

LEONARDO 4K

4K VIDEO CAMERA



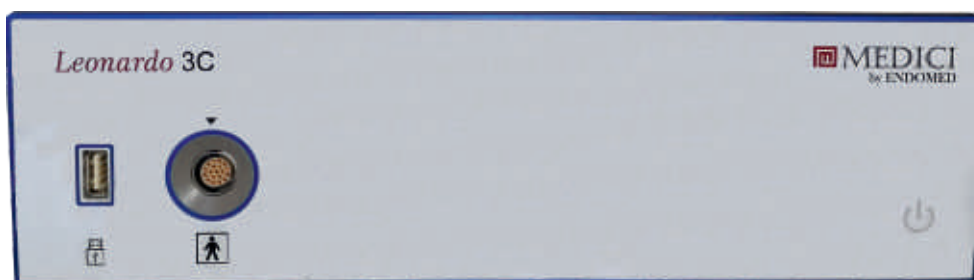
MODEL	LEONARDO 4K
CAMERA SENSOR	3x1/3" 16:9 image sensors
IMAGE SIZE (Horizontal x Vertical)	3840H x 2160V
STANDARD	50Hz OR 60 Progressive
MINIMAL ILLUMINATION	< 3LX
SENSITIVITY	F11 standard (2000lx)
SHUTTER SPEED	AUTO: 1/50s to 1/50000s SHUTTER OFF: 1/50s OR 1/60s
HORIZONTAL RESOLUTION	1600 TVL LINES
SIGNAL TO NOISE RATIO	56 dB (GAIN 0 dB, DNR OFF)
WHITE BALANCE	AWB (Automatic White Balance)
GAIN CONTROL	AUTO (Automatic gain control)
EXPOSURE CONTROL	AUTO
WORKING MODES	5 USERS OR MODES
OUTPUT	4x 3G-SDI 2XHDMI (1x4K 1xHD)
PERIPHERALS CONTROL	2xcontrollable peripherals, ACC1/2
PC COMUNICATION	RS-232C
MAIN VOLTAGE	100 - 240 v
MAIN FREQUENCY	50/60Hz
POWER	100 - 240 v, 45-55VA
FUSE	2 x T 1,0 A E

CAMERA HEAD	LEONARDO 4K
DIMENSIONS (WxHxD)	34 X 42 X 58mm
WEIGHT	90gr
LENS CONNECTION	C-MOUNT
CABLE LENGHT	< 3mt
STERILIZZATION	SOAKABLE, IPX7
CONTROL BUTTONS	3
CONTROL UNIT	
DIMENTION (WxHxD)	325 x 74 x 365mm
WEIGHT	6,5Kg
PROTECTION CLASS	Ip20
LINE WOLTAGE	100-240VAC@50-60Hz
FUSE	2xT1,0 A E/250V (IEC 127)
POWER TESTED ACC.TO	UL2601-1, EN60601-1, IEC60601-1-2
ORDERING NUMBER	
CAMERA UNIT	CULEO4K
CAMERA HEAD	CHLEO4K

LEONARDO 3C 3C CMOS VIDEO CAMERA

FULL-HD INTEGRATED RECORDER

Advanced Image Enhancement



Original Image



Clarity Enhancement



Color Enhancement

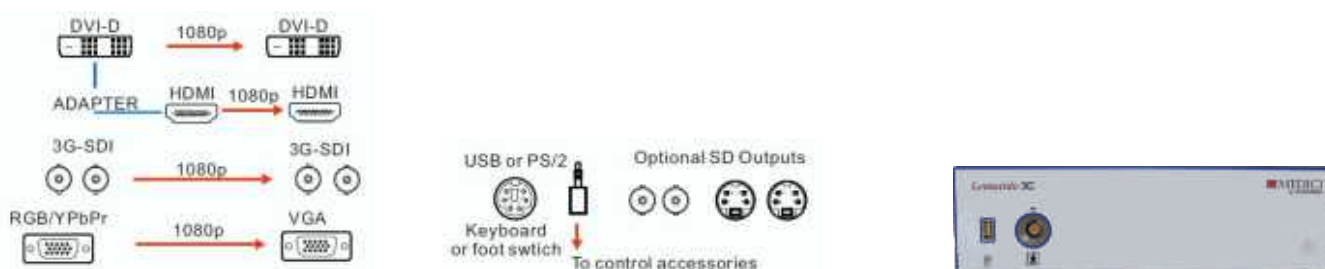


LEONARDO 3C is the latest version of the ultra high definition endoscopy camera which is able to offer a clear and sharp image. With the native progressive scan the LEONARDO 3C provides the sharpest details with incomparable natural color rendition at the highest spatial and temporal resolution. Even the finest variations in tissue structures are distinguishable. LEONARDO 3C will definitely enhance the capabilities of surgeons performing minimally invasive procedures.

 **MEDICI**
by ENDOMED

LEONARDO 3C

3C VIDEO CAMERA



MODEL	LEONARDO 3C
CAMERA SENSOR	3x1/3" image sensors
IMAGE SIZE (Horizontal x Vertical)	1980H x 1080V
SCANNING SYSTEM	Progressive
MINIMAL ILLUMINATION	< 3LX
SENSITIVITY	F11 standard (2000lx)
SHUTTER SPEED	AUTO: 1/50s to 1/50000s SHUTTER OFF: 1/50s OR 1/60s
HORIZONTAL RESOLUTION	1600 TVL LINES
SIGNAL TO NOISE RATIO	56 dB
WHITE BALANCE	AWB (Automatic White Balance)
GAIN CONTROL	AUTO (Automatic gain control)
EXPOSURE CONTROL	AUTO
WORKING MODES	5
OUTPUT	2xDVI-D or HDMI - 2xDIGITAL 3G-SDI - 1xANALOG RGB OR Y/Pb/Pr - 2xS-VIDEO on MINI-DIN 4 - 2xCOMPOSITE VIDEO
ADVANCED SETTING	By ON SCREEN DISPLAY OSD
PC COMMUNICATION	RS-232C
MAIN VOLTAGE	100 - 240 v
MAIN FREQUENCY	50/60Hz
POWER	100 - 240 v, 45-55VA
FUSE	2 x T 1,0 A E

CAMERA HEAD	LEONARDO 3C
DIMENSIONS (WxHxD)	34 X 42 X 58mm
WEIGHT	90gr
LENS CONNECTION	C-MOUNT
CABLE LENGTH	< 3mt
STERILIZATION	SOAKABLE, IPX7
CONTROL BUTTONS	3
CONTROL UNIT	LEONARDO 3C
DIMENTION (WxHxD)	325 x 74 x 365mm
WEIGHT	5,1 Kg
PROTECTION CLASS	Ip20
LINE VOLTAGE	100-240VAC@50-60Hz
FUSE	2xT1,0 A E/250V (IEC 127)
POWER TESTED ACC.TO	UL2601-1, EN60601-1, IEC60601-1-2
ORDERING NUMBER	
CAMERA UNIT	CULEO3C
CAMERA HEAD	CHLEO3C

 **MEDICI**
by ENDOMED

LEONARDO 1C 1CMOS VIDEO CAMERA

FULL-HD INTEGRATED RECORDER

Advanced Image Enhancement



Original Image



Clarity Enhancement



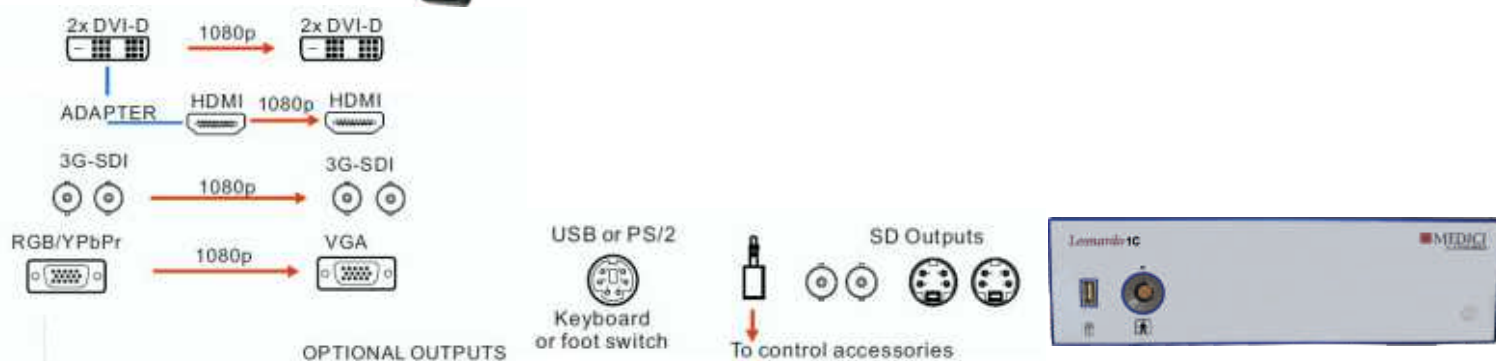
Color Enhancement



LEONARDO 1C endoscopy camera is able to offer a clear and sharp image in full high definition standard. With modern image processing technology, it makes the finest variations in tissue structures distinguishable. The camera offers all necessary features for surgical uses such as digital zoom, freeze, digital edge enhancement, and other functions.

 **MEDICI**
by ENDOMED

LEONARDO 1C 1C VIDEO CAMERA



MODEL	LEONARDO 1C
CAMERA SENSOR	1/3" HD CHIP
IMAGE SIZE (Horizontal x Vertical)	1980H x 1080V
SCANNING SYSTEM	Progressive
USER SETTINGS	5
FRAME RATE	50p EU - 60p US
KEYBOARD SUPPORT	by USB
FOOT SWITCH SUPPORT	OPTIONAL
HORIZONTAL RESOLUTION	1600 TVL LINES
ACCESSORIES CONTROL	by 3.5MM Jack
WHITE BALANCE	AWB (Automatic White Balance)
ADVANCED SETTING	By ON SCREEN DESPLAY OSD
OUTPUT	2xDVI-D - 2xDIGITAL DH/3G-SDI - 1xANALOG RGB OR Y/Pb/Pr - 2xS-VIDEO on MINI-DIN 4 - 2xCOMPOSITE VIDEO
ADVANCED SETTING	By ON SCREEN DESPLAY OSD
PC COMUNICATION	RS-232C on request
MAIN VOLTAGE	100 - 240 v
MAIN FREQUENCY	50/60Hz
POWER	100 - 240 v, 45-55VA
CLASSIFICATION	CLASS I/BF

CAMERA HEAD	LEONARDO 1C
DIMENSIONS (WxHxD)	33 X 35 X 83mm
WEIGHT	100gr
LENS CONNECTION	C-MOUNT
CABLE LENGHT	< 3mt
STERILIZZATION	SOAKABLE, IPX7
CONTROL BUTTONS	3
CONTROL UNIT	LEONARDO 1C
DIMENTION (WxHxD)	325 x 74 x 365mm
WEIGHT	5,1 Kg
PROTECTION CLASS	Ip20
LINE VOLTAGE	100-240VAC@50-60Hz
FUSE	2xT1,0 A E/250V (IEC 127)
POWER TESTED ACC.TO	UL2601-1, EN60601-1, IEC60601-1-2
ORDERING NUMBER	
CAMERA UNIT	CULEO1C
CAMERA HEAD	CHLEO1C

MEDICI LIGHT SOURCE LSLED1600

SUPER SILENT LED OPTICAL-FIBER LIGHT SOURCE



* LED: Light-Emitting Diode

LED endoscopy light source has a very high efficiency and a long life expectancy. It is intended to substitute halogen lamp or xenon optical fiber illuminators. The unparalleled long life time (>50.000 hours, longer than 250 halogen lamps or 100 xenon lamps) makes LED light source the most cost-efficient illuminator, and changing lamp is never needed. LED light source is a Super Silent product. LED light source generates no more than 30dB(A) airborne noise, 4 times quieter than other traditional products. The airborne noise is hardly audible, preventing noise in operation room and providing a comfortable operating environment.

MODEL	LSLED1600
Color temperature	6000K
Lamp Life time	> 50,000 hours
Dimming method	Auto or Manual
Video input	Via BNC Connector
Video format	Composite Video (SD) Y Component (SD or D)
Light guide connector	Storz type (standard) ACMI, Olympus, and Wolf (optional)
Advanced settings	External Triggering (optional)
Environment	0°C - +40°C temperature less than 75% relative humidity
Classification	CE Class I / BF
Dimensions (W×H×D)	325 × 74 × 365 mm
Weight	6,5 KG
Power consumption	100W max.
Line voltage	100 -240VAC @ 50-60 Hz
Fuse	2 × T 1.6 A E / 250V (IEC 127)
Tested according to	En60601, IEC60601-1 Directive 93/42/EEC

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MEDICI LIGHT SOURCE LSLED1600

High intensity illumination

With cutting-edge LED technology and innovative optical fibers design, LED light source can deliver much more light than a 250W halogen lamp and is comparable to 180W even 300W xenon lamp. With this light intensity, light source can be used in several endoscopy applications. This energy saving illumination product will definitely be the future golden standard.

Unparalleled long life time of LED lamp

LED lamp has more than 50,000 hour life time, longer than 250 halogen lamps or 100 Xenon lamps. Unparalleled long life LED solves the problem that many sellers have to spend a lot on traveling just for changing a tiny lamp for the anxious waiting doctors. LED lamp will emit endless high intensity light without any pause or interruption, and never be burns out suddenly as a halogen lamp. This advantage reduces the chance of accidents caused by illuminating interruptions during operation.

Super Silent product

Airborne noise in operation and examination room generated by traditional light sources sometimes becomes a very annoying problem. This noise pollution may bring a potential risk to influence the operation and diagnosis. With its unique design, 100 light source operates at a very quiet condition. The generated noise is lower than 30dB(A), four times lower than other traditional products. Noise level is doubled when increasing 6dB.

Manual or automatic light intensity adjustment

LED light source provides two means of dimming, by manual adjustment with control button on the front panel; alternatively, the output light intensity can be adjusted automatically depending on the input composite video signal of standard definition or Y signal of high definition video through the BNC connector on the rear panel of the light source.

Consistent color temperature when dimming

In contrast to an halogen lamp, color temperature of LED light source does not change when the light is dimmed or as the LED ages, resulting in a consistent visual appearance.

Exchangeable light guide adapter

Light source is equipped with a Storz compatible light guide connector. Optionally, ACMI, Olympus, and Wolf light guide connectors are available.

LED LIGHT SOURCE



Big TFT display



Comfy menu



Modern tech.



Easy to clean





LSLEDTS



LSLED

- latest LED technology
- extremely long LED service life - more than 50 000 hrs.
- high intensity light output (equivalent to 300W Xenon)
- low noise, low heat conduction
- electronic light control via touch screen
- menu language selection
- pure daylight quality
- waterproof touch control panel
- non-volatile memory user settings
- display the current settings on the color 7" TFT monitor

- latest LED technology
- high intensity light output (equivalent to 300W Xenon) at low power consumption
- extremely long LED service life - more than 50 000 hrs.
- low noise, low heat conduction
- electronic light control via buttons
- pure daylight quality
- waterproof control panel

SPECIFICATIONS	LSLEDTS	LSLED
Light source lifetime, hrs	50 000	50 000
Light source power (LED or Xenon), W	90	90
Light color temperature, K	5600	5600
Adjustment of light intensity, %	0 ... 100	10 ... 100
Intensity adjustment	Electronically	Electronically
Controls	Touch Screen	Pushbuttons
Protection class	I	I
Applied part	BF	BF
Standard	EN 60601-1; classification acc. to MDD 93/42/EEC: I	
Dimensions, mm	350x150x350	350x150x350
Weight, kg	6,4	7,1
Mains voltage, V	230	230

Co2 INSUFFLATOR



Big TFT display



Comfy menu



Modern tech.



Easy to clean





INS30H

- very smooth insufflation algorithm allowing to avoid sharp abdominal pressure changes
- audible and visual alarm signaling system in case of a failure (hose rupture/pinching, intra-abdominal overpressure etc.)
- display of all current and preset insufflation parameters: set/current pressure, gas flow speed, volume of gas supplied
- device can be used with gas bottles or central gas supply systems - input pressure range 4 ... 10 bars
- insufflator is available with a highly efficient gas heating subsystem (option)
- automatic self-check is activated each time the unit is switched on to ensure that all electronic and pneumatic components are in good running order

INS40H

- INS40H is a high-performance insufflator with friendly user interface.
- stable pressure balance in the abdomen is guaranteed by high gas flow performance (40 liters per minute) and low insufflation pressure)
- patient safety is ensured by the system of protective valves, by microprocessor control with audible and visual signaling
- device can be used with gas bottles or central gas supply systems - input pressure range 4...10 bars
- big TFT display gives a quick overview of the rated and actual values of gas pressure and gas flow
- setting of the working parameters is made by touching controls on touchscreen multilanguage menu
- for eliminating of post-surgery problems, the insufflator is equipped with a highly efficient gas heating subsystem

SPECIFICATIONS	INS30H	INS40H
Insufflation pressure, mm Hg	1 ... 30	1 ... 30
Maximum gas flow rate, l/min	30	40
Range of the gas temperature maintenance, °C	33...36 (option)	33...36
Gas cylinder pressure indicator	Yes	Yes
Safety exsufflation valve	Yes	Yes
Display	LED	7" TFT Touch Screen
Protection class	I	I
Applied part	BF	BF
Standard	EN 60601-1; classification acc. to MDD 93/42/EEC: IIa	
Mains voltage, V	230	230
Dimensions, mm	350x140x350	350x140x350
Weight, kg	7,8	8,3

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Co2 INSUFFLATOR



High performance



Smart Continuous Flow Algorithm



Gas heating system



High level of patient safety



Smoke evacuation





INS45HS

Safety

- automatic computer-supported check on device soft- and hardware when turning the unit on
- internal gas exsufflation valve is activated for automatic reduction of dangerous intraabdominal overpressure

Ergonomic design

- big 7" TFT display gives a quick overview of the rated and actual values of gas pressure, gas flow, alarms etc.
- setting of the working parameters is made by touching controls on touchscreen multilanguage menu

Performance

- high flow rate capacity of 45 l/min quickly compensates for even big gas losses
- insufflator's Smart Continuous Flow algorithm ensures insufflation depending on the filling

level of the body cavity, thus an optimized filling speed is achieved with fully automatic, situation-related insufflation pressure values. A continuous gas flow provides a filling procedure with small pressure fluctuations in the body cavity and a high average insufflation performance

Gas heating

- for eliminating of post-surgery problems, the insufflator is equipped with a highly efficient gas heating subsystem

Smoke evacuation

- evacuation of smoke and mist generated during electrosurgery, and ultrasonic procedures can be made by pressing the footswitch

Gas supply

- device can be used with gas bottles or central gas supply systems - input pressure range 4...100 bars

SPECIFICATIONS

INS45HS

Insufflation pressure, mmHg	1 ... 30
Maximum gas flow rate, l/min	45
Range of the gas temperature maintenance, °C	33...36
Gas cylinder pressure indicator	Yes
Active exsufflation, Smoke evacuation	Yes / Yes
Display	7" TFT Touch Screen
Protection class	I
Applied part	BF
Standard	EN 60601-1; classification acc. to MDD 93/42/EEC: IIa
Mains voltage, V	230
Dimensions, mm	350x140x350
Weight, kg	7,8



SUC-IRR.1

- based on a high performance pump
- minimal level of acoustic noise
- aspirates out not only liquid components but small blood conglomerations as well
- controlled by footswitch
- special spike enables quick irrigation bottle replacement



SUC-IRR.2

- based on a high performance pump
- minimal level of acoustic noise
- aspirates out not only liquid components but small blood conglomerations as well
- special spike enables quick irrigation bottle replacement
- suction or irrigation modes are activated by an instrument (Auto mode) or footswitch (Footswitch mode)
- automatic standby function keeps the pressure available and reduces the noise if the system is in use

SPECIFICATIONS

	SUC-IRR.1	SUC-IRR.2
Max vacuum in aspiration channel, mmHg	700	700
Max overpressure in irrigation channel, mmHg	300	300
Maximal liquid outgo, l/min	5	5
Controls	footswitch	footswitch, automatic
Protection class	I	I
Applied part	BF	BF
Standard	EN 60601-1; classification acc. to MDD 93/42/EEC, IIa	
Mains voltage, V	230	230
Power consumption, W, max.	70	70
Dimensions, mm	325 x 85 x 350	325 x 85 x 350
Weight, kg	5.3	5.6



 **MEDICI**
by ENDOMED

ALLINONE SISTEMA VIDEO HD INTEGRATO

VIDEOCAMERA FULL-HD
FONTELUCE MONITOR

NAIO1000

- USB Full HD image storage, Photo capture and Video recording function
- 19-inch high-definition monitor
- High definition imaging workstation
- Sony CMOS HD camera
- LED cold light source
- Integrated design of LED cold light source and CMOS camera



ALLINONE SISTEMA VIDEO HD INTEGRATO

Technical Data

Camera head:	<ul style="list-style-type: none"> - Full HD imaging (1920 x 1080) - 1/2.8" SONY CMOS - IPX8 waterproof - Full HD optical coupler C-mount standard
Voltage range (current consumption):	- 100-240 V (50 VA)
Frequency:	- 50-60 Hz
Device protection:	- 2x T3,15 A
Video system:	<ul style="list-style-type: none"> - Image resolution: Full HD 1920 x 1080 - Horizontal resolution: ≥900 TVL - SNR: 50dB, Tolerance 20% - Scanning system: Progressive Scanning - White balance automatically
Monitor:	- 19 inch
Light source:	- Built-in 80W LED cold light source
Recording (optional)	<ul style="list-style-type: none"> - Image format: JPG 1920 x 1080 - Video format: Full HD 1920 x 1080; Mpeg-4 (H.264 Codec); Image rate 60fps - Connection: USB
Connections	Video out terminal: <ul style="list-style-type: none"> - 1x DVI - 1x HDMI - 1x CVBS
Protection class (acc.to IEC 60601-1):	- I
Safety class:	- BF
Standard:	- IEC 60601-1-2
Device classification (EU) 2017/745, annex VIII:	- I
Features:	<ul style="list-style-type: none"> - White balance - Freeze function - Zoom in/Zoom out - Touch Buttons - USB storage - Photo capture/Video recording
Language:	- Chinese/English/Japanese
Dimensions:	- 461(L)x395(W)x163(H)

OPTIONAL

Built-in imaging work-station(optional)

Camera head



Options

Features:	<ul style="list-style-type: none"> - Photo capture, video recording - Zoom in/Zoom out
Waterproof level	- IPX 8

Vitruvio 200

ELECTROSURGICAL UNIT FOR
MONOPOLAR AND BIPOLAR USE
WITH 7.0" TOUCH-SCREEN



New dimension of surgery

VITRUVIO200 is provided with all the technical features, and monopolar and bipolar currents needed to perform the most advanced electrosurgery

 **MEDICI**
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VITRUVIO 200 is provided with all the technical features, and the monopolar and bipolar currents needed to perform the most advanced electrosurgery

VITRUVIO 200 is provided with 10 currents for the monopolar cutting

Pure Cut	Pure cut without coagulating effect. For open or laparoscopic surgery and for under liquid endoscopy (TURP, TURV).
Blend Cut 1	Cut blended with a medium coagulating effect. For open or laparoscopic surgery and for under liquid endoscopy (TURP, TURV).
Blend Cut 2	Cut blended with a very high coagulating effect. For open or laparoscopic surgery.
Pure Cut Pulsed	Pulsed pure cut without coagulating effect. For open or laparoscopic surgery.
Blend Cut Pulsed	Pulsed cut blended with a medium coagulating effect. For open or laparoscopic surgery.
Auto Pure Cut Micro	"Constant voltage" delicate pure cut without coagulating effect. For open or laparoscopic surgery and for under liquid endoscopy (TURP, TURV).
Auto Blend Cut Micro	"Constant voltage" delicate cut blended with a medium coagulating effect. For open or laparoscopic surgery and for under liquid endoscopy (TURP, TURV).
Auto Papillo Pure Cut	"Constant voltage" pure cut, without coagulating effect, for flexible endoscopy. With four modes of delivery: continuous and pulsed (slow, medium, fast).
Auto Polipo Blend Cut	"Constant voltage" cut, blended with a medium coagulating effect, for flexible endoscopy. With four modes of delivery: continuous and pulsed (slow, medium, fast).
Auto EndoCut	"Constant voltage" cut with alternating phases of cutting and blended cut, for flexible endoscopy. With four modes of delivery: 90% Coagulation and 10% Cut, 80% Coagulation and 20% Cut, 75% Coagulation and 25% Cut, 50% Coagulation and 50% Cut.

VITRUVIO 200 is provided with 5 currents for monopolar coagulation

Fulg Forced Coag	High voltage, contact free coagulation. For open or laparoscopic surgery, for under liquid endoscopy (TURP, TURV) and for flexible endoscopy.
Spray Coag	Very high voltage, contact free coagulation. For open or laparoscopic surgery, for under liquid endoscopy (TURP, TURV) and for flexible endoscopy.
Pulsed Spray Coag	Identical to the Spray coag current, but pulsed and more delicate.
Pin Point Contact Coag	Medium voltage, contact coagulation. For open or laparoscopic surgery, for under liquid endoscopy (TURP, TURV) and for flexible endoscopy.
Soft Micro Coag	Delicate, low voltage coagulation. For open or laparoscopic surgery.

VITRUVIO 200 is provided with 4 currents for bipolar cutting

Standard Bicut	Cut for open or laparoscopic surgery.
Blend Bicut	Cut blended with a very high coagulating effect (Coagulation = 95%) for open or laparoscopic surgery.
Saline Uro-Gyn Cut	Cut for endoscopy in saline (TURPis, TURVis) with two modes of delivery: continuous and pulsed. For urology and gynecology. Continuous delivery is suitable to perform the vaporization.
Saline Arthro Cut	Cut for arthroscopy in saline with two modes of delivery: continuous and pulsed. For arthroscopy. Continuous delivery is suitable to perform the vaporization.

VITRUVIO 200 is provided with 3 currents for bipolar coagulation and 2 currents for bipolar vessel sealing

Soft Micro Bicoag	Very precise and delicate coagulation. For open or laparoscopic surgery, for endoscopy in saline (TURPis, TURVis) and for flexible endoscopy.
Forced Macro Bicoag	Fast coagulation. For open or laparoscopic surgery.
Auto Soft Micro Bicoag	Identical to the Soft Micro Bicoag, but with Impedance sensing automatic activation/deactivation. It is not suitable for the endoscopy in saline. Activation with delay adjustable from 0 to 5 seconds and deactivation with bitonal, grave, acoustic signal.
Sealing	Current to coagulate/seal vessels up to 8 mm in open and laparoscopic surgery. Activation with pedal and automatic Impedance sensing deactivation with bitonal, acute, acoustic signal.
Auto Sealing	Identical to the Sealing, but with Impedance sensing automatic activation/deactivation. It is not suitable for endoscopy in saline. Activation with delay adjustable from 0 to 5 seconds and deactivation with bitonal, grave, acoustic signal.

Technical features of all models

HF generator	Meets IEC 60601-1 and IEC 60601-2-2 (Latest editions). Supply section <i>“switching”</i> type.
EMC compatibility	Meets IEC 60601-1-2 (Latest edition).
EC Classification and approval	Class IIB according to 93/42/CEE (and its revised version) – Certificate nr. 187/MDD (IMQ 0051).
ALSA quality system	Meets ISO 9001 and ISO 13485 (Latest editions). Certificates 9120.ALSA and 9124.ALS2 (IMQ 0051).
Classification according to IEC 60601-1	Class I, CF type with the following typical low frequency leakage currents (all cables tied together): On the patient: 4µA = 0,004mA / Into the enclosure: 1µA = 0,001mA / To earth: 30µA = 0,03mA.
Output circuit according to IEC 60601-2-2	FLOATING (Isolated at high and low frequencies) and protected against the use of the defibrillator. Typical HF leakage currents measured at the unit: Monopolar currents = 90mA, Bipolar currents = 60mA.
Working frequency	Monopolar and bipolar currents: 440kHz ± 5%.
Functioning control	Computerized MASTER/SLAVE SYSTEM <ul style="list-style-type: none"> • It performs a <i>Main Auto-check</i> at the switching ON (repeated every 30 minutes of operation) and the continuous <i>Standard Auto-check</i> during use. • It stops the power activation in case of hardware/software failures, mistakes of use, an anomalous power delivery, and it signals them by acoustic and visual Error Codes. • It memorizes all Error Codes to help the check and the technical assistance.
Self-adjusting of output powers	Computerized self-adjustment with PER (Power Efficiency Rating > 98%) according to the impedances of tissues (Feed-back in real time - 7000 times/sec) by two different systems: <ul style="list-style-type: none"> • ADC System – Dynamic self-adjustment with constant power The powers have a progressive setting (Micro and Macro setting with steps from 0,1 to 10W). Monopolar currents (from 1 to 10W), Bipolar currents (from 0,1W to 5W). • APC System - Fully automatic control The powers have a setting with 10 effects (the unit shows, for each effect, the maximum delivered power).
Control of the HF leakage currents	By a specific computerized circuit with alarms.
Memorization of programs	100 programs identifiable by number and text (Surgical use or Name of the surgeon).
Usable pencils or instruments	All models allow the following use of the monopolar and bipolar accessories: <ul style="list-style-type: none"> • One/two either hand-switched or foot-switched monopolar pencils or instruments. Two monopolar pencils can be used simultaneously according to IEC 60601-2-2. • One/two bipolar instruments by foot-switch activation (When selecting the Auto Soft Micro Bicoag or the Auto Sealing currents, an instrument is usable by the Impedance sensing automatic activation/deactivation).
Twin foot-switches	The unit can be used by either one or two waterproof (IPN8) twin foot-switches. <ul style="list-style-type: none"> • Only with one twin foot-switch (DS/Esw or DS/Eswl, large model for the use in endoscopy) with a Foot-selector to activate either the monopolar or the bipolar currents. • Only with one twin foot-switch (DS/B) to activate the bipolar currents only. • With both twin foot-switches, one to activate the monopolar currents and one to activate the bipolar ones.
Control circuit of the neutral electrode	NPCC System with double circuit: Contact quality monitor and Continuity monitor with four progressive alarm lights and stop of the power delivery. The circuit operates as follows: <ul style="list-style-type: none"> • It checks all kinds of neutral electrode, both “split” double area and “non split” single area. • It has two modes of use: Large electrodes for adults and Small electrodes for paediatrics and new-born. • It allows the use of cables with both European “Ø 6,35mm” and USA “2 pins” connectors.
Luminous and acoustic signals of activation and alarm	They meet IEC 60601-2-2 (Latest edition). Lights: Cutting = yellow, Coagulation = blue, Alarms and Error codes = red Activation sounds: Continuous (acute for the cut and grave for the coagulation, with level adjustable from 45 to 65dB), including a bitonal sound to indicate the power deactivation when using the currents: Auto Soft Micro Bicoag, Sealing and Auto Sealing. Alarm sound: Intermittent (High >65dB and not adjustable).
Mains supply and consumption, Mains switch, Fuses and Standby	100 / 230V ± 10% ~ 50/60Hz (Consumption: Max. 3,6A = 828VA, Standby 0,4A = 92VA). Bipolar switch (green), Two fuses 8A, Standby mode selectable on the touch-screen.
Equipotential connection	Standard DIN 42801 plug.
Enclosure, Cooling	Metal painted case, protected against the spilling of liquids according to IEC 60601-2-2. Cooling by convection (No fan).
Software updating and calibration	Updating by a serial port connected to a PC, calibration on-site.
Dimensions and weight (LxWxH)	NHP/T-400 and T-200: 38x35x19cm - 10Kg – NHP/TA-400 and TA-200: 38x38x19cm - 10,5Kg.

VITRUVIO 200 – THE CURRENTS

MONOPOLAR CUTTING

	Pure Cut	Blend Cut 1	Blend Cut 2	Pure Cut Pulsed	Blend Cut Pulsed	Auto Pure Cut Micro	Auto Blend Cut Micro	Auto Papillo Pure Cut	Auto Polipo Blend Cut	Auto Endocut
Max Output Power	200 W	200 W	200 W	200 W	200 W	200 W	200 W	200 W	200 W	200 W
Rated load	400 Ω	400 Ω	400 Ω	400 Ω	400 Ω	300 Ω	300 Ω	300 Ω	300 Ω	300 Ω
Vpp	2550	3390	3330	2640	3330	1137	1500	1140	1490	1670
Crest factor	1,46	1,94	2,29	2	3,2	1,5	1,98	1,5	1,98	
Modulation	0	17 kHz	17 kHz	3 Hz	50 Hz	0	17 kHz	0	17 kHz	-
Duty Cycle	100%	95%	65%	50%	50%	100%	90%	100%	95%	
Power setting	Progressive with steps from 1 to 10 W						10 Effects			
Power control	ADC System – Dynamic self-adjusting with constant power						APC System - Totally self-adjusting with constant voltage			

MONOPOLAR COAGULATION

	Fulg Forced Coag	Spray Coag	Pin Point Contact Coag	Pulsed Spray Coag	Soft Micro Coag
Max Output Power	150 W	200 W	200 W	200 W	200 W
Rated load	300 Ω	700 Ω	400 Ω	700 Ω	300 Ω
Vpp	4500	7750	3700	7850	2875
Crest factor	6,4	7,75	2,2	11,54	2,1
Modulation	60 kHz	30 kHz	17 kHz	3 Hz	17 kHz
Duty Cycle	18%	7%	85%	50%	75%
Power setting	Progressive with steps from 1 to 10 W				10 Effects
Power control	ADC System - Dynamic self-adjusting with constant power				APC System - Totally self-adjusting with constant voltage

BIPOLAR CUTTING

	Saline Uro-Gyn Cut	Saline Arthro Cut	Standard Bicut	Blend Bicut
Max Output Power	350 W	230 W	200 W	160 W
Rated load	350 Ω	350 Ω	300 Ω	200 Ω
Vpp	1070	1070	1070	740
Crest factor	1,5	1,5	1,5	1,57
Modulation	0	0	0	17 kHz
Duty Cycle	100%	100%	100%	95%
Power setting	10 Effects		Progressive with steps from 0,1 to 5 W	
Power control	ADC System – Dynamic self-adjusting with constant power			

BIPOLAR COAGULATION AND VESSEL SEALING

	Soft Micro Bicoag	Auto Soft Micro Bicoag	Sealing	Auto Sealing	Forced Macro Bicoag
Max Output Power	140 W	140 W	320 W	320 W	200 W
Rated load	100 Ω	100 Ω	50 Ω	50 Ω	100 Ω
Vpp	460	460	780	780	550
Crest factor	1,56	1,56	2,47	2,47	1,6
Modulation	0	0	0	0	0
Duty Cycle	100%	100%	100%	100%	100%
Power setting	Progressive with steps from 0,1 to 5 W		10 Effects		Progressive with steps from 0,1 to 5 W
Power control	APC System - Totally self-adjusting with constant voltage			ADC System - Dynamic self-adjusting with constant power	

HF LEAKAGE CONTROL



Continuous check of any high frequency leakage to earth. If the system identifies potentially dangerous situations such as patient contact with metal parts of the operating table, it automatically reduces the power supplied eliminating risks such as burns on the patient and informs the operators by means of an alarm signal.

2 DOUBLE FOOTSWITCH CONTROLS

Can be used for mono or bipolar functions on the same pedal by foot selector or by using two pedals at the same time (mono and bipolar). Pedals are protected against accidental use, they are watertight to the dive (IPX7) and are powered by medical safety voltage (12VDC).



2 MONOPOLAR and 2 BIPOLAR SIMULTANEOUS OUTPUTS



The outputs can be used simultaneously by two surgeons using handles with manual controls (international 3-pin connectors), one with manual controls and the other one with a normal monopolar handle by the double pedal control. To use monopolar instrument cables, with a single connector other than the standard one, an adapter is needed.

CONTROL OF THE NEUTRAL ELECTRODE



Neutral electrode control circuit checks the cable, its connection and the contact between electrode and the patient's tissues. Stops the delivery of power, with an acoustic and visual alarm if:

- the cable is damaged or isn't well connected
- the electrode contact is insufficient

Bipolar double control footswitch



Wide double control footswitch for endoscopy



Bipolar adapter Martin / Erbe



Bipolar adapter 4mm female



Monopolar adapter



	Codici
Vitruvio 200 Generator	VTR200
Cable for neutral electrodes	449195
Neutral silicon electrode, autoclavable for adult 25x12cm, cable 2,5m	801420
Neutral silicon electrode autoclavable for kids 19x8cm, cable 2,5m	801419
Double Monopolar footswitch	416101
Double large footswitch, 30x18 cm, Monopolar/Bipolar for Endoscopy	416105
Double bipolar footswitch 25x12cm.	416102
Bipolar cable adapter Medici/Martin	2370017
Bipolar cable adapter Medici/Erbe	2370018
Bipolar cable adapter Medici/4mm	2370019
Monopolar cable adapter from Ø2-8mm	2370016

POWERSONIC
INTEGRATE SYSTEM
FOR ELECTROSURGERY

ULTRASOUND GENERATOR





GENERATOR

- ITM - Intelligent Tissue Monitoring
- Built-in dual core high-speed DSP, which can intelligently monitor the characteristics and charges of the shear tissue, accurately adjust the output of energy, and ensure the best sealing effect and reduce the thermal damage when processing different tissues



Safety Insurance

- Passed USA 510K vessel sealing test in 2016. Sealing the vessel up to 5mm



Data Storage

- Perform power-on self-test, monitor the running state of the system, and update the system log in real time for query at any time
 - Reorganize the shear automatically, and record the usage times and working status of the hand piece
-



HANDLE

Original design

- High efficiency hand piece, no over heat occur even in long time use
- Autoclavable
- Can be used under sterile bag
- Soft and flexible wire



HPT25

SHEAR



Balance design tip provides better hemostatic effect, less lateral thermal damage

- Strong clamps provides stable performance on cutting and sealing
- Beautiful integrative structure
- Embedded tissue pad, strong and stable



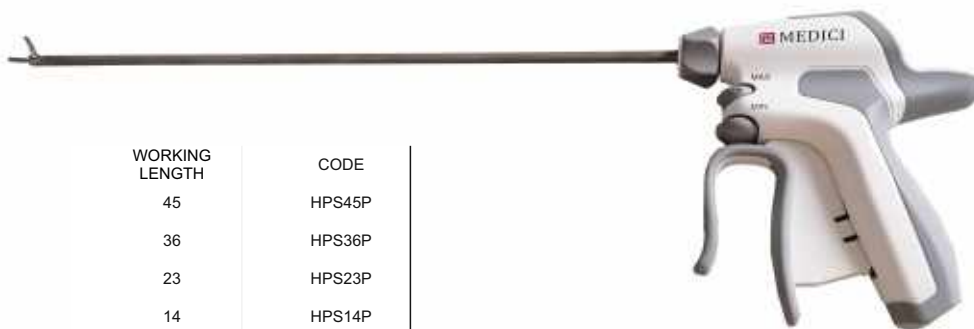
Ergonomic handle makes the holding more comfortable



Various styles

USE Serial -- Pistol Style Shear

Applications: Laparoscope, Open surgery, Superficial Surgery.



WORKING LENGTH	CODE
45	HPS45P
36	HPS36P
23	HPS23P
14	HPS14P

USS Serial -- Scissors Style Shear

Application: Open surgery Superficial Surgery



WORKING LENGTH	CODE
9	HPS09S
17	HPS17S



Generator Specifications

Code	GEN10PLUS
Voltage	100-240V
Frequency	50/60Hz
Screen size	7 inches
Screen color	TFT
Generator size	360*340*135mm
Ambient temperature	10 - 30 °C
Ambient humidity	no more than 70%
Storage temperature	-35 - 55 °C
Storage humidity	no more than 90%
Working noise level	below 90dB
Electrical safety classification	class IIb
Application part safety Classification	CF
Water-proof class	Footswitch IPX8



Foot-Switch



FSW01



MEDICI

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