



ELECTRO SURGERY



Elektro Chirurgie
Electro surgery

Eléctrochirurgie
Electro-Cirurgía
Elettrobisturi

Katalog
Catalogue
Catalogue
Catálogo
Catalogo

No. **212**

Kataloge | Catalogues
 Catalogues | Catálogos
 Cataloghi

Endoskopie | Endsocopie
 Endoscopy | Endoscopia
 Endoscopia



Geräte
 Units
 Appareils
 Equipos
 Apparecchi

ENDOSCOPY | **No. 205**



Sinuskopie
 Sinuscopy
 Sinuscopie
 Sinuscopía
 Sinuscopia

ENDOSCOPY | **No. 211**



Optiken
 Scopes
 Optiques
 Ópticas
 Ottiche

ENDOSCOPY | **No. 206**



Elektro Chirurgie
 Electro surgery
 Eléctrochirurgie
 Electro-Cirugía
 Elettrobisturi

ENDOSCOPY | **No. 212**



Laparoskopie
 Laparoscopy
 Laparoscopie
 Laparoscopia
 Laparoscopia

ENDOSCOPY | **No. 207**



Mini & Mikro System für MIC
 Mini & micro system for MIS
 Système mini & mikro pour MIC
 Sistema mini y micro para MIC
 Sistema mini e micro per MIC

ENDOSCOPY | **No. 213**



Urologie
 Urology
 Urologie
 Urología
 Urologia


ENDOSCOPY | **No. 208**

Sterilisation | Stérilisation
 Sterilization | Esterilización
 Sterilizzazione



Gynäkologie
 Gynaecology
 Gynécologie
 Ginecología
 Ginecologia

ENDOSCOPY | **No. 209**



Steril Container - System I
 Sterile container - system I
 Conteneurs pour stérilisation - système I
 Contenedores para esterilización - sistema I
 Container per sterilizzazione - sistema I

STERILIZATION | **No. 302**



Arthroskopie
 Arthroscopy
 Arthroscopie
 Artroscopia
 Artroscopia

ENDOSCOPY | **No. 210**



Steril Container - System II
 Sterile container - system II
 Conteneurs pour stérilisation - système II
 Contenedores para esterilización - sistema II
 Container per sterilizzazione - sistema II

STERILIZATION | **No. 303**



Kataloge | **Catalogues**
Catalogues | **Catálogos**
Cataloghi

Chirurgie | **Chirurgie**
Surgery | **Cirurgía**
Chirurgia

Dental | **Dentaire**
Dental | **Dental**
Dentale

Hauptkatalog Chirurgie
Main catalogue surgery
 Catalogue général
Catálogo general
 Catalogo generale

SURGERY | **No. 111**

Dental
Dental
 Dentaire
Dental
 Dentale

DENTAL | **No. 402**

Plastische Chirurgie
Plastic surgery
 Chirurgie plastique
Cirurgía plástica
 Chirurgia plastica

SURGERY | **No. 112**

HNO | **ORL**
ENT | **ORL**
ORL

Ophthalmologie
Ophthalmology
 Ophtalmologie
Oftalmologia
 Oftalmologia

SURGERY | **No. 113**

HNO Hauptkatalog
ENT main catalogue
 ORL catalogue général
ORL catálogo general
 ORL catalogo generale

ENT | **No. 501**

Traumatologie
Traumatology
 Traumatologie
Traumatología
 Traumatologia

SURGERY | **No. 114**

Retraktor Systeme
Retractor systems
 Systèmes des écarteurs
Sistema de retractores
 Sistemi di retrattori

SURGERY | **No. 133**

Aneurismen Clips
Aneurysm clips
 Clips pour anévrismes
Clips para aneurismas
 Clips per aneurismi

SURGERY | **No. 134**

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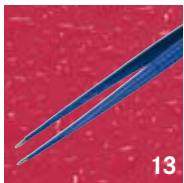
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General technical features

Technology

Electronic generator HF current technology by "mosfet oscillator". Functioning control by two microprocessors, programmable on site with a computer through a serial interface. Automatic selfcheck, output error control, error codes with storage of the last 32 error codes for technical assistance. Automatic power control by microprocessors according to the impedances of the tissues and start-impulse control of cutting currents, also microprocessor controlled.

Functioning control and output power control

Electronically controlled by two microprocessors with: automatic selfcheck when switching on the unit and during functioning, automatic power control of all output currents with a feed-back unit/patient tissues and start-impulse control of the cutting currents. Output error control of all currents. Immediate stop in case of any hardware/software failure with error codes and storage of the last 32 codes.

Neutral electrode safety system

The unit is provided with an alarm circuit which simultaneously controls the connection and the contact of non split as well as split neutral electrodes as follows:

- non split neutral electrodes : it controls the connection and its connection to the unit and to the neutral electrode. In case of disconnection or breakage of the cord, the output power is automatically interrupted and the alarm will start (acoustic intermittent signal and flashing red light)
- double section neutral electrodes: it also controls the contact of the electrode to the tissues of the patient
- in case of only 80% contact of a standard electrode for adults, a first visual signal comes on.
- in case of only 65% contact of a standard electrode for adults, a second visual signal comes on
- in case of only 50% contact of a standard electrode for adults, a third visual signal comes on and the output power will be automatically reduced to a maximum of 200 W
- in case of a minimal and thus dangerous contact between the neutral electrode and the patient, or of a broken or disconnected cable, the output power is automatically interrupted and the alarm will start (acoustic intermittent signal and flashing red light)



Monopolar outputs and activations

Two outputs for independent or simultaneous use by two surgeons and five possibilities of activation:

- one output for the double pedal switch and one for a handle with manual control
- both outputs for two handles with manual control
- both outputs for a double pedal switch
- for normal or minimal invasive HF surgery and Argon gas enhanced surgery – one output for the activation by a manual control handle for HF surgery, one output with activation by special manual control handle for argon gas use
- for flexible endoscopic HF surgery and Argon gas coagulation – one output for the activation for HF surgery and one for argon gas coagulation, both by double pedal switch



Bipolar outputs and activations

One output with independent use and six possibilities of activation

- with the double pedal switch for cut or coagulation.
- for the coagulation by „impedance sensing“, auto start/stop with an adjustable starting delay from 0 to 5 sec, in the „Auto“ coagulation mode
- one output for the coagulation of big vessels with activation by a pedal switch, but with „impedance sensing“ auto start/stop selecting the "Sealing" mode
- two outputs with activation by a double pedal switch, one output for cut and one for coagulation
- two outputs with different modes of activation: one output for cut, by double pedal switch and one output, for coagulation, by „impedance sensing“ auto start/stop with an adjustable starting delay from 0 to 5 sec, in the „Auto“ coagulation mode
- two outputs with different modes of activation: one for cut, by double pedal switch and one for coagulation of big vessels, by double pedal switch, but with „impedance sensing“ auto start/stop selecting the „Sealing“ mode



General technical features



Memorization of working programs

Up to 100 programmable memories, including some preset programs for general surgery or minimal invasive surgery with or without Argon gas enhanced modes, endoscopic surgery under liquid (TURP/TURV), flexible endoscopic surgery with or without Argon gas coagulation and bipolar surgery (normal or in a saline solution).



Setting the HF power

By push-buttons, with micro/macro setting and visual control on displays.

Power steps for the monopolar currents: in steps of 1W from 1 to 30W; 2W from 30 to 100W; 5W from 100 to 200W and 10W from 200W to max.

Power steps for the bipolar currents: in steps of 0,5W from 1 to 10W; 1W from 10 to 30W; 2W from 30 to 100W and 5W from 100W to max.

Colour codes, signals, alarms

Yellow colour code for cutting: on the control panel, the push-buttons on manual control pencils and on the pedals of the double foot-switches.

Blue colour code for coagulation: on the control panel, the push-buttons on manual control pencils and on the pedal of the double foot-switches.

Activation of cutting currents: yellow light and a continuous, very deep acoustic signal.

Activation of coagulation currents: blue light and a continuous, high acoustic signal.

Alarm of neutral electrode: red light and intermittent, high acoustic signal

Alarm of HF leakage current control: red light

Alarm of auto-check system and output error control: specific acoustic signals and error codes on the display.



Argon gas section

Gas supply: by 1 or 2 cylinders (each cylinder with a capacity of 5 lt.), provided with an independent pressure reducer; 200 atm for completely filled bottle); or by the external central gas supply in combination with a pressure reducer.

Connection of argon gas: by a quick-action coupling device for the tubing set of the gas supply.

Max working pressure and maximum flow: 1 atm, 15 lt/min.

Setting of argon gas: flow adjustable from 1 to 15 lt/min. by push-buttons, visual control by led bars.

3 safety devices: external pressure reducer on the cylinder; internal overpressure valve; software controlled pressure sensor with a self check, each time the Argon section is switched on.

Automatic flow control: electronically controlled valve with automatic flow setting according to the diameter of the electrode in use.

Bacterial safety: by a specific bacterial filter connected to the argon output on the front panel.

TOM 412A / HF-units with inbuilt argonbeamer

TOM 412A

tk 90010-00

ACCESSORY SET

tk 90011-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	CV PURE	CV BLEND	CV ENDO
Max. output power	400 W	300 W	130 W	400 W	300 W	250 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω	340 Ω	340 Ω
Vpp	3470	3620	7650	1480	1950	1880
Crest factor	1.6	2.35	8.4	1.6	2.4	2.1
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues		

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

CV PURE - "Constant voltage" pure cut without coagulating effect

CV BLEND - "Constant voltage" cut, blended with a low coagulating effect

CV ENDO - "Constant voltage" pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY	ARGON GAS COAGULATION
Max. output power	140 W	250 W	270 W	130 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω	650 Ω
Vpp	4720	3450	3440	7700	7700
Crest factor	4.55	2.56	2.4	8.5	8.4
Power control	Dynamic power control according to the impedances of tissues				Dynamic power control according to the impedances of tissues and gas flow (Argon section must be activated)

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation

ARGON GAS COAGULATION - Contact free, very high voltage, argon gas enhanced coagulation



TOM 412A / HF-units with inbuilt argonbeamer

BIPOLAR CUTTING

	PURE	SALINE
Max. output power	160 W	160 W
Rated load	300 Ω	280 Ω
Vpp	870	890
Crest factor	1.55	1.6
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

SALINE - Pure cut for endoscopic use in saline solution

e.g. bipolar TURP, TURV

BIPOLAR COAGULATION

	MICRO	AUTO	FORCED MICRO	MACRO	SEALING
Max. output power	120 W	120 W	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω	100 Ω	100 Ω
Vpp	430	430	740	760	720
Crest factor	1.75	1.75	1.75	1.76	1.74
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues		

MICRO - Micro coagulation

AUTO - Micro coagulation with "impedance sensing" auto start/stop function

FORCED MICRO - Micro coagulation

MACRO - Macro coagulation

SEALING - Strong macro coagulation for coagulation of big vessels and for minimal invasive procedure with "impedance sensing" auto start/stop function

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
Frequency	450 KHz
Main switch	green, situated on the front panel
Main fuses	2, situated on the rear side
Protective earth resistance	resistance lower than 0,1Ω (in compliance with IEC 601-1)
Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 2x bipolar, 1x Argon gas (1 - 15 liter/min)
Memories	99
Dimensions (WxDxH)	400 x 400 x 180 mm
Weight	18 kg
Housing and front panel	metal case, painted and protected against the seeping in of liquids. Front panel with integrated push-buttons

TOM 212A / HF-Units with inbuilt argonbeamer

TOM 212A

tk 90011-00

ACCESSORY SET

tk 90011-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	CV PURE	CV BLEND	CV ENDO
Max. output power	270 W	270 W	140 W	270 W	270 W	220 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω	340 Ω	340 Ω
Vpp	3440	3580	7650	1480	1950	1880
Crest factor	1.6	2.25	8.4	1.6	2.4	2.1
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues		

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

CV PURE - "Constant voltage" pure cut without coagulating effect

CV BLEND - "Constant voltage" cut, blended with a low coagulating effect

CV ENDO - "Constant voltage" pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY	ARGON GAS COAGULATION
Max. output power	140 W	250 W	270 W	130 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω	650 Ω
Vpp	4720	3450	3440	7700	7700
Crest factor	4.55	2.56	2.4	8.5	8.4
Power control	Dynamic power control according to the impedances of tissues				Dynamic power control according to the impedances of tissues and gas flow (Argon section must be activated)

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation

ARGON GAS COAGULATION - Contact free, very high voltage, argon gas enhanced coagulation



TOM 212A / HF-Units with inbuilt argonbeamer

BIPOLAR CUTTING

	PURE	SALINE
Max. output power	160 W	160 W
Rated load	300 Ω	280 Ω
V _{pp}	870	890
Crest factor	1.55	1.6
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

SALINE - Pure cut for endoscopic use in saline solution

e.g. bipolar TURP, TURV

BIPOLAR COAGULATION

	MICRO	AUTO	FORCED MICRO	MACRO	SEALING
Max. output power	120 W	120 W	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω	100 Ω	100 Ω
V _{pp}	430	430	740	760	720
Crest factor	1.75	1.75	1.75	1.76	1.74
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues		

MICRO - Micro coagulation

AUTO - Identical to MICRO current, but with "impedance sensing" auto start/stop function

FORCED MICRO - Micro coagulation

MACRO - Macro coagulation

SEALING - Strong macro coagulation for coagulation of big vessels and for minimal invasive procedure with "impedance sensing" auto start/stop function

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
Frequency	450 KHz
Main switch	green, situated on the front panel
Main fuses	2, situated on the rear side
Protective earth resistance	resistance lower than 0,1Ω (in compliance with IEC 601-1)
Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 2x bipolar, 1x Argon gas (1 - 15 liter/min)
Memories	99
Dimensions (WxDxH)	400 x 400 x 180 mm
Weight	18 kg

TOM 412 / HF-Units

TOM 412

tk 90010-02

ACCESSORY SET

tk 90010-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	CV PURE	CV BLEND	CV ENDO
Max. output power	400 W	300 W	130 W	400 W	300 W	250 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω	340 Ω	340 Ω
Vpp	3470	3620	7650	1480	1950	1880
Crest factor	1.6	2.35	8.4	1.6	2.4	2.1
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues		

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

CV PURE - "Constant voltage" pure cut without coagulating effect

CV BLEND - "Constant voltage" cut, blended with a low coagulating effect

CV ENDO - "Constant voltage" pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY
Max. output power	140 W	250 W	270 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω
Vpp	4720	3450	3440	7700
Crest factor	4.55	2.56	2.4	8.5
Power control	Dynamic power control according to the impedances of tissues			

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation



TOM 412 / HF-Units

BIPOLAR CUTTING

	PURE	SALINE
Max. output power	160 W	160 W
Rated load	300 Ω	280 Ω
V _{pp}	870	890
Crest factor	1.55	1.6
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

*SALINE - Pure cut for endoscopic use in saline solution
e.g. bipolar TURP, TURV*

BIPOLAR COAGULATION

	MICRO	AUTO	FORCED MICRO	MACRO	SEALING
Max. output power	120 W	120 W	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω	100 Ω	100 Ω
V _{pp}	430	430	740	760	720
Crest factor	1.75	1.75	1.75	1.76	1.74
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues		

MICRO - Micro coagulation

AUTO - Micro coagulation with "impedance sensing" auto start/stop function

FORCED MICRO - Micro coagulation

MACRO - Macro coagulation

SEALING - Strong macro coagulation for coagulation of big vessels and for minimal invasive procedure with "impedance sensing" auto start/stop function

TECHNICAL DATA

Power supply	230 / 115 VAC ± 10%; 50 / 60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
Frequency	450 KHz
Main switch	green, situated on the front panel
Main fuses	2, situated on the rear side
Protective earth resistance	resistance lower than 0,1Ω (in compliance with IEC 601-1)
Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 2x bipolar
Memories	99
Dimensions (WxDxH)	400 x 400 x 180 mm
Weight	17 kg
Housing and front panel	metal case, painted and protected against the seeping in of liquids. Front panel with integrated push-buttons

TOM 411 / HF-Units

TOM 411

tk 90010-04

ACCESSORY SET

tk 90010-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	ENDO
Max. output power	400 W	300 W	130 W	250 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω
Vpp	3470	3620	7650	1890
Crest factor	1.6	2.35	8.4	2.15
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

ENDO - Pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY
Max. output power	140 W	250 W	270 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω
Vpp	4720	3450	3440	7700
Crest factor	4.55	2.56	2.4	8.5
Power control	Dynamic power control according to the impedances of tissues			

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation



TOM 411 / HF-Units

BIPOLAR CUTTING

	PURE	BLEND
Max. output power	140 W	110 W
Rated load	300 Ω	280 Ω
V _{pp}	800	960
Crest factor	1.55	1.9
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

BLEND - Blend cut with stronger coagulating effect

BIPOLAR COAGULATION

	MICRO	AUTO	MACRO
Max. output power	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω
V _{pp}	430	430	760
Crest factor	1.75	1.75	1.76
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues

MICRO - Micro coagulation

AUTO - Micro coagulation with "impedance sensing" auto start/stop function

MACRO - Macro coagulation

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
Frequency	450 KHz
Main switch	green, situated on the front panel
Main fuses	2, situated on the rear side
Protective earth resistance	resistance lower than 0,1Ω (in compliance with IEC 601-1)
Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 1x bipolar
Dimensions (WxDxH)	9
Dimensions	400 x 400 x 180 mm
Weight	17 kg

TOM 212 / HF-Units

TOM 212
tk 90011-02

ACCESSORY SET
tk 90010-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	CV PURE	CV BLEND	CV ENDO
Max. output power	270 W	270 W	140 W	270 W	270 W	220 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω	340 Ω	340 Ω
Vpp	3440	3520	7650	1480	1950	1880
Crest factor	1.6	2.35	8.4	1.6	2.4	2.1
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues		

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

CV PURE - "Constant voltage" pure cut without coagulating effect

CV BLEND - "Constant voltage" cut, blended with a low coagulating effect

CV ENDO - "Constant voltage" pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY
Max. output power	140 W	250 W	270 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω
Vpp	4720	3450	3440	7700
Crest factor	4.55	2.56	2.4	8.5
Power control	Dynamic power control according to the impedances of tissues			

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation



TOM 212 / HF-Units

BIPOLAR CUTTING

	PURE	SALINE
Max. output power	160 W	160 W
Rated load	300 Ω	280 Ω
V _{pp}	870	890
Crest factor	1.55	1.6
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

*SALINE - Pure cut for endoscopic use in saline solution
e.g. bipolar TURP, TURV*

BIPOLAR COAGULATION

	MICRO	AUTO	FORCED MICRO	MACRO	SEALING
Max. output power	120 W	120 W	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω	100 Ω	100 Ω
V _{pp}	430	430	740	760	720
Crest factor	1.75	1.75	1.75	1.76	1.74
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues		

MICRO - Micro coagulation

AUTO - Micro coagulation with "impedance sensing" auto start/stop function

FORCED MICRO - Micro coagulation

MACRO - Macro coagulation

SEALING - Strong macro coagulation for coagulation of big vessels and for minimal invasive procedure with "impedance sensing" auto start/stop function

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
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Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 2x bipolar
Memories	99
Dimensions (WxDxH)	400 x 400 x 180 mm
Weight	17 kg

TOM 211 / HF-Units

TOM 211
tk 90011-04

ACCESSORY SET
tk 90010-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND "SOFT"	BLEND "STRONG"	ENDO
Max. output power	200 W	200 W	130 W	200 W
Rated load	340 Ω	340 Ω	650 Ω	340 Ω
Vpp	3440	3480	7650	1860
Crest factor	1.6	2.35	8.4	2.2
Power control	Dynamic power control according to the impedances of tissues			Fully automatic output power control according to the impedances of tissues

PURE - Pure cut without coagulating effect

BLEND "SOFT" - Cut blended with a medium coagulating effect

BLEND "STRONG" - Cut blended with a strong spray coagulating effect

ENDO - Pure cut with alternating phases of coagulation for flexible endoscopy

MONOPOLAR COAGULATION

	FULG	PIN POINT	SOFT	SPRAY
Max. output power	140 W	200 W	200 W	130 W
Rated load	340 Ω	260 Ω	240 Ω	650 Ω
Vpp	4720	3450	3440	7700
Crest factor	4.55	2.56	2.4	8.5
Power control	Dynamic power control according to the impedances of tissues			

FULG - Contact free high voltage coagulation

PIN POINT - Medium voltage coagulation

SOFT - Contact, low voltage coagulation

SPRAY - Contact free high voltage coagulation



TOM 211 / HF-Units

BIPOLAR CUTTING

	PURE	BLEND
Max. output power	110 W	120 W
Rated load	300 Ω	280 Ω
Vpp	800	960
Crest factor	1.55	1.9
Power control	Dynamic power control according to the impedances of tissues	

PURE - Pure cut with low coagulating effect

BLEND - Blend cut with stronger coagulation effect

BIPOLAR COAGULATION

	MICRO	AUTO	MACRO
Max. output power	120 W	120 W	120 W
Rated load	100 Ω	100 Ω	100 Ω
Vpp	430	430	760
Crest factor	1.75	1.75	1.76
Power control	Fully automatic power control according to the impedances of tissues		Dynamic power control according to the impedances of tissues

MICRO - Micro coagulation

AUTO - Micro coagulation with "impedance sensing" auto start/stop function

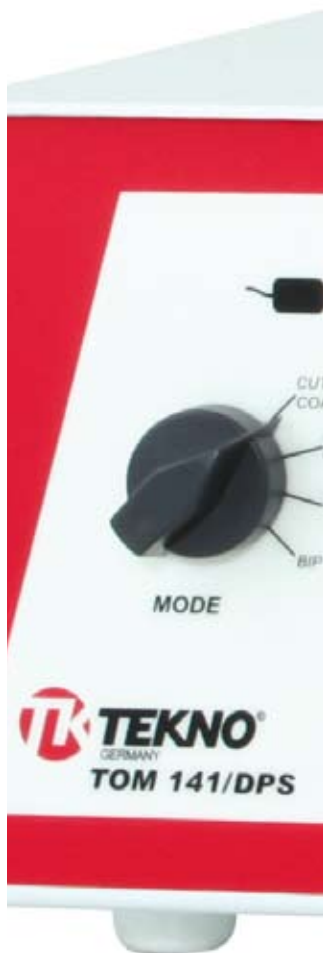
MACRO - Macro coagulation

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	max. power: 830 VA / switching on: 860 VA / stand-by: 110 VA
Frequency	450 KHz
Main switch	green, situated on the front panel
Main fuses	2, situated on the rear side
Protective earth resistance	resistance lower than 0,1Ω (in compliance with IEC 601-1)
Equipotential connection	DIN 42801, international plug
Cooling	by convection
Outputs	2x monopolar, 1x bipolar
Memories	9
Dimensions (WxDxH)	400 x 400 x 180 mm
Weight	17 kg
Housing and front panel	metal case, painted and protected against the seeping in of liquids. Front panel with integrated push-buttons



Technical features of small HF-units



Functioning control and output power control

Complete and permanent control by microprocessor, interfaced with highspeed analogue/digital converters for checking controls. Output control with automatic and dynamic adjustment by a microprocessor-controlled, specific circuit (ADC system), with feedback unit/patient tissue (7000 times/sec).

Micro-progressive power settings, step by step, by keys with indication 01'1 on the display.

Neutral electrode safety system

Controlled by a microprocessor.

Specific circuit with alarm warning (red signal and high-pitched intermittent sound) and output stop in case of absence of connection or bad contact between electrode and tissue is detected.

Single footswitch control

With monopolar pencil or bipolar electrode. One output selection button.

No display (TEKNO TOM 141).

Double footswitch control

With monopolar pencil and bipolar electrode or manual control with monopolar pencil with twin buttons (TEKNO TOM 141 DPS).

Automatic and dynamic output adjustment

Controlled by a specific circuit software, able to perform continuous feedback between HF-unit and the patient's tissue and optimised function. Independently of the impedances (type of tissue), the electrode in use or the process speed.

TOM 141 DPS / Small HF units

TOM 141 DPS

240 V	tk 90005-00
110 V	tk 90005-01

ACCESSORY SET

tk 90005-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND
Max. output power	140 W	120 W
Rated load	450 Ω	450 Ω
V _{pp}	1180	1430
Crest factor	1.65	2.7

PURE - Pure cut without coagulating effect

BLEND - Cut blended with a medium coagulating effect

BIPOLAR COAGULATION

	COAG
Max. output power	100 W
Rated load	100 Ω
V _{pp}	400
Crest factor	1.4

COAG - Contact, low voltage coagulation

MONOPOLAR COAGULATION

	FULG	SOFT
Max. output power	120 W	60 W
Rated load	450 Ω	200 Ω
V _{pp}	2700	1400
Crest factor	6.7	2.7

FULG - Contact free high voltage coagulation

SOFT - Contact, low voltage coagulation

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	245 VA
Nominal frequency of HF currents	470 kHz
Main fuses	2, situated on the rear side
Equipotential connection	DIN connector
Cooling	by convection
Outputs	1x monopolar, 1x bipolar
EC approval and classification	IIb according to EC-93/42 EEC
Safety class	Class 1 according to CEI EN 60601-2-2
Type	CF according to IEC 60601-1 (Leakages less than 10 microA)
Dimensions (WxDxH)	300 x 255 x 120 mm
Weight	5 kg



TOM 141 / Small HF units

TOM 141	
240 V	tk 90004-00
110 V	tk 90004-01

ACCESSORY SET
tk 90004-50

see page 24



MONOPOLAR CUTTING

	PURE	BLEND
Max. output power	140 W	120 W
Rated load	450 Ω	450 Ω
V _{pp}	1180	1430
Crest factor	1.65	2.7

PURE - Pure cut without coagulating effect

BLEND - Cut blended with a medium coagulating effect

BIPOLAR COAGULATION

	COAG
Max. output power	100 W
Rated load	100 Ω
V _{pp}	400
Crest factor	1.4

COAG - Contact, low voltage coagulation

MONOPOLAR COAGULATION

	FULG	SOFT
Max. output power	120 W	60 W
Rated load	450 Ω	200 Ω
V _{pp}	2700	1400
Crest factor	6.7	2.7

FULG - Contact free high voltage coagulation

SOFT - Contact, low voltage coagulation

TECHNICAL DATA

Power supply	230/115 VAC ± 10%; 50/60 Hz
Power consumption	245 VA
Nominal frequency of HF currents	470 kHz
Main fuses	2, situated on the rear side
Equipotential connection	DIN connector
Cooling	by convection
Outputs	1x monopolar, 1x bipolar
EC approval and classification	IIb according to EC-93/42 EEC
Safety class	Class 1 according to CEI EN 60601-2-2
Type	CF according to IEC 60601-1 (Leakages less than 10 microA)
Dimensions (WxDxH)	280 x 255 x 120 mm
Weight	4.7 kg

Accessories sets for HF units
STANDARD SETS

For TEKNO TOM	211, 212, 411, 412		212A, 412A			141 DPS		141	
	Standard		Argon			Standard		Standard	
	tk 90010-50	tk 90010-60	Basic	LAS	Gastro	tk 90005-50	tk 90005-60	tk 90004-50	tk 90004-60
tk 90011-50			tk 90011-51	tk 90011-52					
Handle insertion in mm	Ø 2.4	Ø 4.0				Ø 2.4	Ø 4.0	Ø 2.4	Ø 4.0
Double pedal switch, monopolar	tk 90016-00	x	x	x	x	x			
Twin double pedal switch	tk 90302-16					x			
Pneumatic pedal switch, monopolar	tk 90018-00							x	x
Pneumatic double pedal switch, monopolar	tk 90019-00					x	x		
Handle with manual control	tk 90020-00	x		x	x	x			
Handle with manual control	tk 90030-01		x				x		x
Handle with manual control	tk 90301-10		x	x	x				
Handle without manual control	tk 90021-00	x		x	x	x		x	
Handle without manual control	tk 90031-00								
Knife electrodes (2x)	tk 90022-01	x		x	x	x		x	
Knife electrodes (2x)	tk 90032-01		x				x		x
Knife electrode, rigid, 40 mm	tk 90301-16		x	x	x				
Knife electrodes, 100mm	tk 90022-05	x		x	x	x			
Rhombic knife electrode	tk 90032-02		x						
Needle electrode, thick	tk 90023-01	x		x	x	x		x	
Needle electrode, thick	tk 90033-01		x				x		x
Needle electrode, thin	tk 90023-02	x		x	x	x		x	
Needle electrode, thin	tk 90033-02		x				x		x
Ball electrode, Ø 2.5 mm	tk 90024-01	x		x	x	x		x	
Ball electrode, Ø 4.0 mm	tk 90034-01		x				x		x
Ball electrode, Ø 4.0 mm	tk 90024-02	x		x	x	x		x	
Ball electrode, Ø 6.0 mm	tk 90034-02		x				x		x
Loop electrode, Ø 5.0 mm	tk 90025-01	x		x	x	x			
Loop electrode, Ø 10.0 mm	tk 90035-01		x						
Coagulation electrode, rigid, 25 mm	tk 90301-11			x	x	x			
Coagulation electrode, rigid, 320 mm	tk 90301-13				x				
Neutral electrode with cable	tk 90029-00	x	x	x	x	x			
Neutral electrode with cable	tk 90029-20						x	x	x
Fixing belt for neutral electrodes	tk 90029-50	x	x	x	x	x	x	x	x
Cable for flexible electrode, 2.5 m	tk 90301-18					x			
Adapter for monopolar cable	tk 90302-21					x			
Tube for gas input with quick-action coupling	tk 90302-14			x	x	x			

Illustration and description, please see pages 28-35



ENDOSCOPY

ELECTRO SURGERY

Smoke evacuation system

Smoke evacuation system	tk 90300-20	tk 90300-18
Smoke evacuation system PRO	tk 90300-21	tk 90300-19

without footswitch with footswitch



Smoke evacuation system

- Independent electrical suction pump with high air flow rate of 3000 l/hour
- The unit can be combined with all HF-units on the market, monopolar and bipolar
- Automatic mode - Each time the electrosurgical unit is activated the smoke evacuation system starts working
- Adjustable flow rate with "turbo" function
- Suction is switched off with a delay function, adjustable from 1-30sec.
- Smoke filtering system at three stages:
 1. External sterile, disposable, antibacterial, antiviral filter
 2. Internal bacterial and antiviral HEPA filter
 3. Internal antismell "active carbon" filter
- The functioning of the unit is controlled by a microprocessor. Double check of the filter system, with alarm signal for non efficient filters, or exceeded filter life times

Smoke evacuation system PRO

- Same features as the Smoke evacuation system (tk 90300-20), but with connector for an external vacuum system or suction pump. Especially for endoscopic interventions with CO²-insufflators by control of the CO² output flow

Included accessories

- 1 none sterile tubing
- 1 disposable sterile tubing for connection to speculum or other suction sets as sterile, disposable handswitch handles with smoke suction
- 1x filtering group including:
 - 1x bacterial filter MAXIPEAT/2
 - 1x antismell filter SCAVENGER,
 - 1x bacterial filter DEAS 1911 Class IEC 601: Class I, Type BF with "floating" output circuit - Class 93/42 MDD:IIA.

TECHNICAL DATA

	Smoke evacuation system	Smoke evacuation system PRO
Power supply	230/115 VAC ± 10%	
Power consumption	650 VA	
Main fuses	2, situated on the rear side	
Max. vacuum	110 mmHg	720 / 730 mmHg
Flow rate	3000 lt/hour	
Cooling	by fan	
EC approval and classification	IIa according to 93/42 EEC	
Safety class	Class 1 according to IEC EN 60601-1	
Type	BF according to IEC 60601-1	
Dimensions (WxDxH)	390 x 400 x 210 mm	
Weight	15 kg	



Accessories for the smoke evacuation system



tk 90300-40

1x Internal active carbon filter (antismell), single use



tk 90300-41

1x Internal bacterial, antiviral HEPA filter, single use



tk 90300-42

1x External, sterile/disposable bacterial, antiviral filter, single use



tk 90300-43 | 1,8m - Ø 11mm

Disposable sterile tube to connect to a speculum or other suction systems as disposable handles with suction cannulae and even direct suction



tk 90300-44 | 1,5m - Ø 19mm

Extension tube for tk 90300-43 and tk 90300-47, non sterile, single use



tk 90300-45 | 5m - Ø 7x11mm

Autoclavable silicone tube with connection to the unit and connection to disposable handles



tk 90300-47

Sterile sleeve for standard handles (box of 20 pieces), single use



tk 90300-50

Autoclavable connecting tube, complete with quick connector for the unit, but not equipped with connector to the centralized vacuum system because too many different connections are used



tk 90300-48 | x = 5/6 cm

tk 90300-49 | x = 11/12 cm

Steril, disposable handle with knife and suction tube

Footswitches



Monopolar	tk 90016-00	TOM 412A, 412, 411, 212A, 212, 211
Bipolar	tk 90017-00	TOM 412A, 412, 411, 212A, 212, 211

Footswitch

for use with unit

7



Monopolar / Bipolar	tk 90018-00	TOM 141
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Pneumatic footswitch



Monopolar / Bipolar	tk 90019-00	TOM 141 DPS
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Pneumatic footswitch



Electrode handles



Ø 2.4 mm	tk 90021-00
Ø 4.0 mm	tk 90031-00

Electrode port

Handle without manual control



Ø 2.4 mm	tk 90020-00
Ø 4.0 mm	tk 90030-01

Electrode port

Handle with manual control



	x = 150 mm
Ø 2.4 mm	tk 90038-01
Ø 4.0 mm	tk 90038-02

Electrode port

Electrode extension



for other handles, see our special electro-surgery accessories catalogue

Electrodes



		2.5 x 20 mm	1.6 x 20 mm	Ø 0.5 x 20 mm	Ø 0.8 x 20 mm	Ø 0.8 x 20 mm
Ø 2.4 mm	x = 40 mm	tk 90022-01	tk 90022-03	tk 90023-02	tk 90023-01	tk 90023-03
	x = 130 mm	tk 90022-05	tk 90022-04	tk 90023-06	tk 90023-05	tk 90023-04
Ø 4.0 mm	x = 30 mm	tk 90032-01	tk 90032-03	tk 90033-03	tk 90033-01	tk 90033-06
	x = 130 mm	tk 90032-05	tk 90032-04	tk 90033-04	tk 90033-05	tk 90033-07

Shaft *Length* *Knife* *Rhombic knife, angled* *Thin needle* *Thick needle* *Needle, angled*

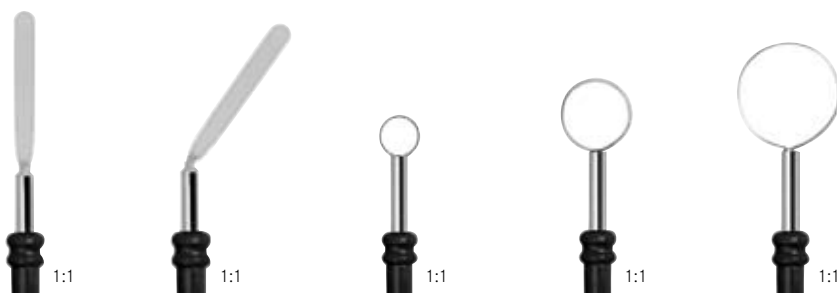


		Ø = 2.0 mm	Ø = 2.0 mm	Ø = 4.0 mm	Ø = 4.0 mm	Ø = 6.0 mm
Ø 2.4 mm	x = 40 mm	tk 90024-01	tk 90034-07	tk 90024-02	tk 90034-11	tk 90024-03
	x = 130 mm	tk 90024-06	tk 90034-10	tk 90024-07	tk 90034-12	tk 90024-08
Ø 4.0 mm	x = 30 mm	tk 90034-00	tk 90034-15	tk 90034-01	tk 90034-13	tk 90034-02
	x = 130 mm	tk 90034-04	tk 90034-16	tk 90034-05	tk 90034-14	tk 90034-06

Shaft *Length* *Ball* *Ball, angled* *Ball* *Ball, angled* *Ball*



Electrodes



Shaft	Length	Spatula	Spatula, angled	Wire loop	Wire loop	Wire loop
Ø 2.4 mm	x = 40 mm	2.5 x 20 mm tk 90034-08	2.5 x 20 mm tk 90034-09	Ø = 5.0 mm tk 90025-01	Ø = 10.0 mm tk 90025-02	Ø = 14.0 mm tk 90025-03
	x = 130 mm	tk 90034-20	tk 90034-21	tk 90025-06	tk 90025-07	tk 90025-08
Ø 4.0 mm	x = 30 mm	tk 90034-22	tk 90034-23	tk 90035-02	tk 90035-01	tk 90035-03
	x = 130 mm	tk 90034-24	tk 90034-25	tk 90035-06	tk 90035-05	tk 90035-08



Shaft	Length	Wire loop	Wire loop	Wire loop	Wire loop	Wire loop
Ø 2.4 mm	x = 150 mm	10 x 10 mm tk 90026-01	15 x 15 mm tk 90026-02	15 x 20 mm tk 90026-03	20 x 20 mm tk 90026-04	20 x 25 mm tk 90026-05
Ø 4.0 mm		tk 90027-01	tk 90027-02	tk 90027-03	tk 90027-04	tk 90027-05

Flexible electrodes



Ø 1.5 mm	1.5 m	tk 90301-19
Ø 2.3 mm	1.0 m	tk 90301-20
Ø 2.3 mm	2.2 m	tk 90301-21
Ø 3.2 mm	2.2 m	tk 90301-22
<i>Tip</i>	<i>Working length</i>	<i>Flexible electrode</i>

Argon plasma electrodes



1:1



1:1



1:1



1:1

	x = 25 mm	x = 100 mm	x = 350 mm	x = 40 mm	x = 115 mm	x = 40 mm	x = 115 mm
Ø 4.0 mm	tk 90301-11	tk 90301-12	tk 90301-13	tk 90301-14	tk 90301-15	tk 90301-16	tk 90301-17
<i>Shaft</i>	<i>Coagulation</i>	<i>Coagulation</i>	<i>Coagulation</i>	<i>Needle</i>	<i>Needle</i>	<i>Knife</i>	<i>Knife</i>

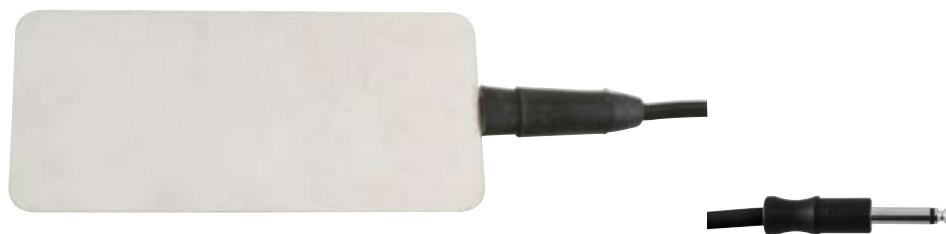


Neutral plates



120 x 250 mm	for adults	tk90029-00	TEKNO, Martin, Berchtold, Integra, Erbe T-series, ACC/ICC, VIO
80 x 180 mm	for children	tk90029-01	

Neutral electrode with 2.5m cable, gummed, reusable, autoclavable for units



60 x 135 mm	tk90029-20	TEKNO, Martin, Berchtold, Integra, Erbe T-series, ACC/ICC, VIO
120 x 250 mm	tk90029-22	

Neutral electrode, stainless steel, with 2.5m cable, reusable, cleanable & sterilizable by cold solutions for units



500 mm	tk90029-50
--------	-------------------

Fixing belt for neutral plates

Trolleys



Trolley for TEKNO TOM units

tk 90295-00



Trolley for ESU, TEKNO TOM and two 5 L cylinders

tk 90302-11

Accessories for HF argon gas units



Ø 4.0 mm	3.5 m	tk 90301-10
<i>Electrode port</i>	<i>Cable length</i>	<i>Manual switch handle for rigid electrodes</i>



2.5 m	tk 90301-18
<i>Cable for flexible electrodes</i>	



1.0 m	tk 90302-14
<i>Tube for gas input with quick-action coupling</i>	



Adapter for monopolar cable	tk 90302-21
-----------------------------	--------------------



Pressure reducer for argon gas cylinder	tk 90302-13
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Argon gas cylinder, 5 L (empty)	tk 90302-12
---------------------------------	--------------------

Monopolar forceps



180 mm - 7"	tk 90200-18	tk 90201-18
210 mm - 8¼"	tk 90200-21	tk 90201-21
250 mm - 10"	tk 90200-25	tk 90201-25
	<i>serrated</i>	<i>1 x 2</i>



180 mm - 7"	tk 90210-18	tk 90211-18
210 mm - 8¼"	tk 90210-21	tk 90211-21
250 mm - 10"	tk 90210-25	tk 90211-25
<i>4 mm female connection</i>	<i>serrated</i>	<i>1 x 2</i>



Monopolar cables

High frequency cable, monopolar

*autoklavierbar / autoclavable
134°C / 273°F*



TEKNO, Berchtold, Martin, Erbe T-series	4 mm / 4 mm male / male	3 m	tk 707-510
		5 m	tk 707-511
TEKNO, Storz, Erbe, Martin, Berchtold	4 mm / 4 mm male / female	3 m	tk 707-520
		5 m	tk 707-521
TEKNO, Valleylab	8 mm / 4 mm male / female	3 m	tk 707-525



For units

Units / Instruments side



Cable length

Bipolar forceps







	0.25 mm	0.6 mm
		
110 mm - 4¼"	tk 90051-11	tk 90052-11
		
110 mm - 4¼"	tk 90051-12	tk 90052-12
	<i>pointed</i>	<i>blunt</i>



	0.25 mm	0.6 mm
		
110 mm - 4¼"	tk 90054-11	tk 90055-11
		
110 mm - 4¼"	tk 90054-12	tk 90055-12
	<i>pointed, angled</i>	<i>blunt, angled</i>



	0.25 mm	0.6 mm
		
110 mm - 4¼"	-	tk 90058-11
120 mm - 4¾"	tk 90057-11	-
		
110 mm - 4¼"	-	tk 90058-12
120 mm - 4¾"	tk 90057-12	-
	<i>pointed, curved</i>	<i>blunt, curved</i>

	0.3 mm	1.0 mm	2.0 mm
			
160 mm - 6¼"	tk 90184-16	tk 90185-16	tk 90189-16
180 mm - 7"	tk 90184-18	tk 90185-18	tk 90189-18
200 mm - 8"	tk 90184-20	tk 90185-20	tk 90189-20
220 mm - 8¾"	tk 90184-22	tk 90185-22	tk 90189-22
240 mm - 9½"	tk 90184-24	tk 90185-24	tk 90189-24
			
180 mm - 7"	tk 90186-18	tk 90187-18	tk 90190-18
200 mm - 8"	tk 90186-20	tk 90187-20	tk 90190-20
220 mm - 8¾"	tk 90186-22	tk 90187-22	tk 90190-22
240 mm - 9½"	tk 90186-24	tk 90187-24	tk 90190-24
	<i>pointed</i>	<i>blunt</i>	<i>blunt</i>



Bipolar forceps




	0.3mm	1.0 mm	2.0 mm
150 mm - 6 "	tk 90100-15	tk 90101-15	tk 90191-15
160 mm - 6¼ "	tk 90100-16	tk 90101-16	tk 90191-16
180 mm - 7 "	tk 90100-18	tk 90101-18	tk 90191-18
200 mm - 8 "	tk 90100-20	tk 90101-20	tk 90191-20
220 mm - 8¾ "	tk 90100-22	tk 90101-22	tk 90191-22
240 mm - 9½ "	tk 90100-24	tk 90101-24	tk 90191-24
300 mm - 12 "	tk 90100-30	tk 90101-30	-
150 mm - 6 "	tk 90102-15	tk 90103-15	tk 90192-15
180 mm - 7 "	tk 90102-18	tk 90103-18	tk 90192-18
200 mm - 8 "	tk 90102-20	tk 90103-20	tk 90192-20
220 mm - 8¾ "	tk 90102-22	tk 90103-22	tk 90192-22
240 mm - 9½ "	tk 90102-24	tk 90103-24	tk 90192-24
	<i>pointed</i>	<i>blunt</i>	<i>blunt</i>




	0.3mm	1.0 mm	2.0 mm
150 mm - 6 "	tk 90150-15	tk 90151-15	tk 90193-15
160 mm - 6¼ "	tk 90150-16	tk 90151-16	tk 90193-16
180 mm - 7 "	tk 90150-18	tk 90151-18	tk 90193-18
200 mm - 8 "	tk 90150-20	tk 90151-20	tk 90193-20
220 mm - 8¾ "	tk 90150-22	tk 90151-22	tk 90193-22
240 mm - 9½ "	tk 90150-24	tk 90151-24	tk 90193-24
150 mm - 6 "	tk 90152-15	tk 90153-15	tk 90194-15
180 mm - 7 "	tk 90152-18	tk 90153-18	tk 90194-18
200 mm - 8 "	tk 90152-20	tk 90153-20	tk 90194-20
220 mm - 8¾ "	tk 90152-22	tk 90153-22	tk 90194-22
240 mm - 9½ "	tk 90152-24	tk 90153-24	tk 90194-24
	<i>pointed, angled</i>	<i>blunt, angled</i>	<i>blunt, angled</i>

Bipolar forceps




MC PHERSON		
	0.25 mm	0.45 mm
		
70 mm - 2¾ "	tk 90060-07	tk 90062-07
	<i>pointed</i>	<i>blunt</i>



MC PHERSON		
	0.25 mm	0.45 mm
		
70 mm - 2¾ "	tk 90061-07	tk 90063-07
	<i>pointed, angled</i>	<i>blunt, angled</i>



















	0.3 mm	1.0 mm
		
170 mm - 6¾ "	tk 90776-17	tk 90777-17
	<i>pointed, knee angled</i>	<i>blunt, knee angled</i>



Bipolar cables

High frequency cable, bipolar, 3 m

autoclavable
134°C / 273°F

	Erbe ICC/ACC, Wisap, Storz	tk 707-330	Flat plug round	
		tk 707-300	Flat plug square	
		tk 707-310	2-Pin plug	
	Martin, Berchtold	tk 707-331	Flat plug round	
		tk 707-301	Flat plug square	
		tk 707-311	2-Pin plug	
	TEKNO, Valleylab USA	tk 707-332	Flat plug round	
		tk 707-302	Flat plug square	
		tk 707-312	2-Pin plug	
	TEKNO, Valleylab Europe	tk 707-333	Flat plug round	
		tk 707-303	Flat plug square	
		tk 707-309	2-Pin plug	

Unit side

Instrument side

Bipolar scissors

Our bipolar scissors enable simultaneously cutting, dissection and coagulation with the safety of bipolar current. Compatible with "pinpoint" and "micro precise" coagulation.

Easy maintenance, and easy repair: the scissors can be taken apart for sharpening.



180 mm - 7 "	tk 90701-18	tk 90702-18
210 mm - 8¼ "	tk 90701-21	tk 90702-21
230 mm - 8¾ "	tk 90701-23	tk 90702-23
280 mm - 11 "	tk 90701-28	tk 90702-28

curved









curved, slim blades



Bipolar cables

Cables for bipolar scissors, 3 m

autoclavable
134°C / 273°F

	Erbe ICC/ACC, Wisap, Storz	tk 90721-03	
	Martin, Berchtold, Aesculap	tk 90722-03	
	TEKNO, Vallelab USA	tk 90720-03	
	TEKNO, Vallelab Europe	tk 90723-03	

Unit side

Instrument side

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