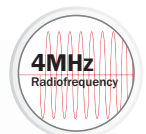




Skull Base, Micro- and Neurosurgery

Solutions for minimally invasive surgery with the CURIS® 4 MHz Radiofrequency Generator



PRECISION ELECTROSURGERY
Made in Germany

PRECISION
ELECTROSURGERY

CURIS® 4 MHz Radiofrequency Generator One unit – many applications



The CURIS® 4 MHz radiofrequency generator relies on innovative 4 MHz technology. Scientific studies have shown that tissue trauma may be reduced by using CURIS® 4 MHz radiofrequency technology.¹

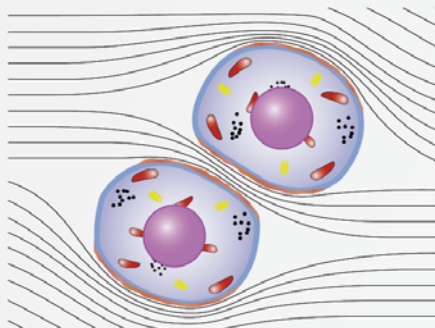
CURIS® 4 MHz Radiofrequency Technology

The higher the frequency, the less the resistance of biological tissue to electromagnetic fields – up to the point where cell membranes are capacitively coupled. This effect is created by the CURIS® 4 MHz radiofrequency generator in all monopolar and bipolar modes. When using conventional electrosurgical units the electromagnetic field concentrates between the cells and only heats up the outer layer. However, with the CURIS® 4 MHz radiofrequency generator cell membranes are conductive, and energy is absorbed evenly inside the cells. As a result, energy is administered gently and in a highly focused fashion. Precise monopolar cuts are possible while lateral heat damage is kept to a minimum.²

¹ Muehlhaff G. et al. A study on the type of lesions achieved by three electrosurgical methods and their way of healing. Romanian Journal of Morphology & Embryology, 2015, 56(4): 1383-1388

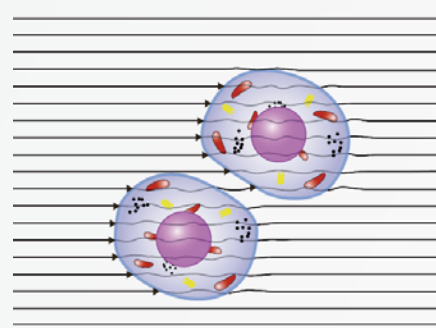
² Hoffmann T.K. et al. Comparative analysis of resection tools suited for transoral robot-assisted surgery European Archives Oto-Rhino-Laryngology, 2014, 271(5): 1207-1213

Conventional electrosurgical units



The electromagnetic field concentrates between the cells and heats up only the outer layer.

CURIS® 4 MHz radiofrequency generator



Cell membranes are conductive and the energy is absorbed evenly inside the cells. The results are highly focused tissue effects.



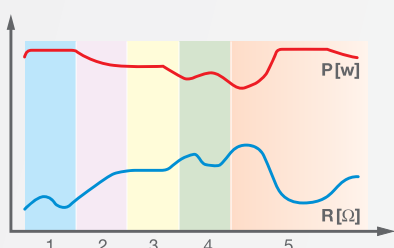
Precision thanks to **AutoRF™**

AutoRF™ is a smart impedance control function that will tailor the power output of the CURIS® 4 MHz radio-frequency generator to the tissue condition. Whether it is cutting through different types of tissue (such as mucosa, muscle, fat or connective tissue) or altering tissue conditions during coagulation, the AutoRF™ feature will deliver adapted power output as required by the different tissue impedance.

When dissecting different types of tissue in one cut (skin, fat, muscles), the unit has to process and respond to the AutoRF™ data in a flash. For this reason, the CURIS® 4 MHz radiofrequency generator has two microprocessors for additional safety and speed.



CURIS® CUT



Monopolar cutting:

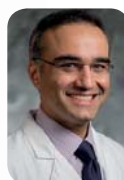
Sections 1 to 5 show the different kinds of tissues and cutting speeds to which the unit adjusts its power output automatically.

p³™-Technology



p³™, which stands for pulsed power performance, is active in all coagulation modes of the CURIS® 4 MHz radiofrequency generator. Radiofrequency energy is delivered in about 50 small packages per second. Due to the pulsed power output, there are short breaks between the individual packages, giving the tissue enough time to absorb the energy. Highly focused, yet gentle coagulation with minimal thermal damage is possible.

“The CURIS® 4 MHz radiofrequency generator provides unparalleled precision to the neurosurgeon seeking optimal control in neurosurgical cases. I have used the device for surgery in the cavernous sinus, resection of cavernous malformation from the motor cortex, minimally invasive clipping of anterior communicating artery aneurysm, and resection of acoustic neuroma. I have found the ability to perform pinpoint cautery, with minimal thermal and electrical spread, increases the safety and efficacy of my operations.”



Ali Zomorodi, MD
Durham, NC (USA)

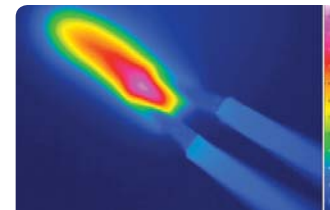


CURIS®: one unit
- many applications



SuperGliss® non-stick Technology

The material specially developed for SuperGliss® non-stick bipolar forceps prevents overheating of the tips during coagulation. Laboratory tests confirm the outstanding non-stick properties that last throughout the lifetime of the instrument.³



SuperGliss® non-stick tips remain cool.



SuperGliss® non-stick bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here: bayonet, tips: 0.7 mm, total length: 19.0 cm (7.5"), working length: 8.5 cm (3.25")
with US 2-pin connector: **78 21 83 SGS**



The **MicroTip** geometry makes the insulation disappear from the surgeon's sight and opens up the view through the tips.



The **classic plateau** shape is designed to grasp, manipulate and coagulate larger structures and vessels.

SuperGliss® non-stick ELP bipolar forceps



"The design and construction of the SuperGliss® non-stick ELP bipolar forceps with different angles and sizes represent a technical innovation that can lead to improved surgical outcomes. These bipolar forceps enhance the quality and quantity of tumor and tissue resection and dissection in skull base surgery and open the possibility of new surgical approaches to microscopic tumor resection and hemorrhage coagulation in the anatomical areas of the skull base."⁴

Uta Schick, MD
Münster (Germany)



SuperGliss® non-stick ELP bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here: bayonet, tips: 0.4 mm, 45° angled upwards, total length: 19.0 cm (7.5"), working length: 8.5 cm (3.25")
with US 2-pin connector: **78 22 86 SLS**



The **Extra Low Profile (ELP)** tips are shorter and more delicate. They are design to meet the challenges of fine, microsurgical interventions.



Intraoperative use of SuperGliss® non-stick ELP bipolar forceps: Removal of medial sphenoid wing meningioma

³Sutter Medizintechnik GmbH, data on file, Freiburg (Germany)

⁴Borghei-Razavi H, Schick U. Multi-size, Multi-angle Microbipolar Forceps for Skull Base Surgery: Technical Note. Journal of Neurological Surgery Reports. 2015 Jul; 76(1): e146-e150



"The sharp tips allow a precision that surpasses all other bipolar forceps I have used throughout my career. The forceps are well-balanced and the shafts are very slender, but strong. With the small upward angulation of the tips, the SuperGliss® non-stick zhora bipolar forceps are perfect for skull base tumors in deep and narrow fields, as well as for more superficial, minimally invasive procedures."

Torstein R. Meling, MD
Geneva (Switzerland)



SuperGliss® non-stick zhora bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here: bayonet, tips: 0.2 mm, 10° eccentric, total length: 19.0 cm (7.5"), working length: 8.5 cm (3.25")
with US 2-pin connector: **78 49 86 SGSZ**



The **zhora** tips are short and delicate. Due to their eccentric tip design by a 10° upward skew, the tips may offer better visibility in the operating field.



CC guide – To match tines exactly and prevent scissoring of the tips.

Reinforced for optimized spring tension.

SuperGliss® non-stick TEO bipolar forceps



"These Sutter bipolar forceps offer the versatility required for standard microsurgery and endoscope-assisted surgery. They are well-balanced, have a minimal amount of non-insulated ends for obvious safety benefits, tips with different thickness for different tissues, various angled tips for different viewing angles, and good grip. I believe they are the best bipolar forceps on the market."

Charlie Teo, MD
Randwick (Australia)



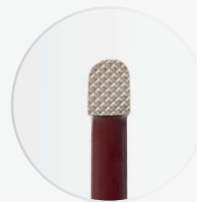
SuperGliss® non-stick TEO bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here: bayonet, tips: 2.0 mm, 60° and 7.0 mm angled upwards, total length: 22.0 cm (8.75"), working length: 11.5 cm (4.5")
with US 2-pin connector: **78 31 96 SGS**



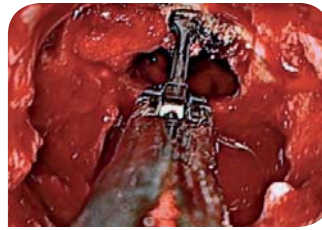
TEO tips are shorter and rounder compared to the other SuperGliss® non-stick models. Different angles enable the surgeon to work "around corners".



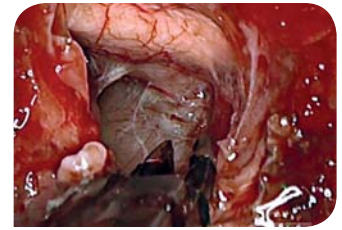
The tips of the SuperGliss® non-stick TEO bipolar forceps are serrated for improved grasping of tissue.



Different models available



Bipolar coagulation in endonasal and transnasal endoscopic surgery with Calvian endo-pen® (REF 70 09 50 S)



Bipolar coagulation in endonasal and transnasal endoscopic surgery with Calvian endo-pen® (REF 70 09 87 S)



„The angled, thin tips of the Calvian endo-pen® bipolar forceps proved to be very effective and precise for soft tissue coagulation to achieve hemostasis. Even very small vessels can be occluded selectively. Moreover, the instrument is helpful for outward dissection in separating normal from tumor tissue. Its easy intraoperative handling and precise coagulation make it a promising instrument for EETS for central skull base pathologies. With its slender shaft and fine tips, the instrument offers all the characteristics required for minimally invasive endonasal surgery.“⁵

R. Gerlach, MD
Erfurt (Germany)

Calvian endo-pen® non-stick bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here:

tips: 0.7 mm, 15° angled
total length: 22.0 cm (8.6")
working length: 10.0 cm (3.9")

with US 2-pin connector:
70 09 89 SGS



horizontal movement

Calvian endo-pen® non-stick bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here:

tips: 0.7 mm, 15° angled
total length: 30.0 cm (12.0")
working length: 18.0 cm (7.0")

with US 2-pin connector:
70 09 88 SGS



horizontal movement

Calvian endo-pen® non-stick bipolar forceps

Our entire range of products can be found on our website www.sutter-usa.com

shown here:

tips: 0.7 mm, 15° angled
total length: 30.0 cm (12.0")
working length: 14.0 cm (5.5")

with US 2-pin connector:
70 09 18 SGS



horizontal movement






⁵ Gerlach R et al. Calvian endo-pen: New Coagulation Forceps for Endoscopic Endonasal Transsphenoidal Surgery. J Neurol Surg A Cent Eur Neurosurg. 2018 Jul 6. doi: 10. 1055/s-0038-1655731.



CURIS® Basic Set

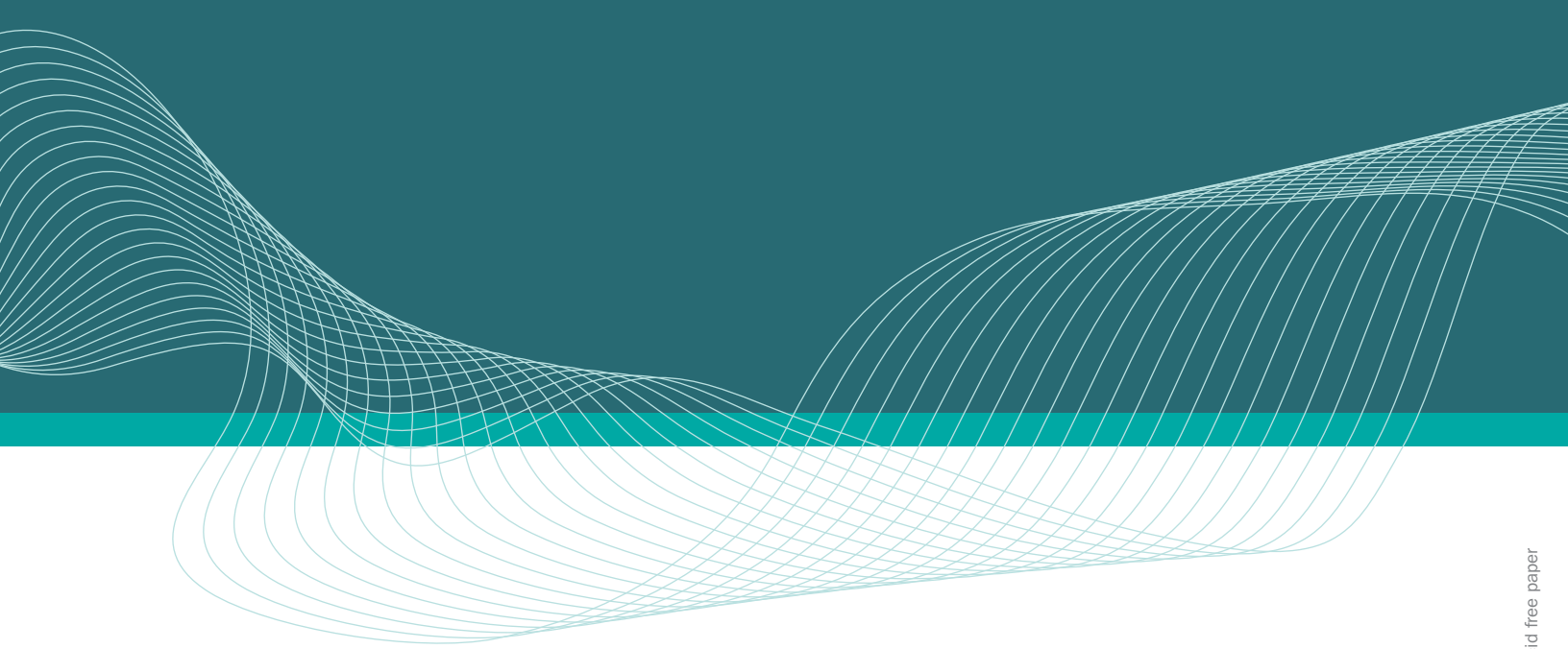
87 00 11 – CURIS® basic set with single-use patient plates

Qty.	REF	Description
1	36 01 00-03	CURIS® 4 MHz radiofrequency generator (incl. mains cord, user's manual and test protocol)
1	36 01 10	Foot switch two pedals for CURIS® (cut & coag), cable length: 4 m (~13 ft)
1 (x50)	36 02 29	Disposable split patient plates
1 (x50)	36 44 04	Disposable monopolar pencils

Cables		
Generator connector	Length	Safety connector / US 2-pin connector
 Sutter CURIS®	3.0 m	37 01 54 S
 US Standard, Erbe ICC International	4.5 m	37 01 35 S
 Valleylab/ Covidien	4.5 m	37 01 50 S
 Olympus, Erbe VIO International	4.5 m	37 01 53 S
 Ellman	3.0 m	37 01 40 S

Disclaimer:

Product availability is subject to regulatory approval in individual markets. Products may therefore not be available in all markets. The listed lengths and sizes serve as a guideline and may be rounded up or down. The actual lengths may vary slightly.



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