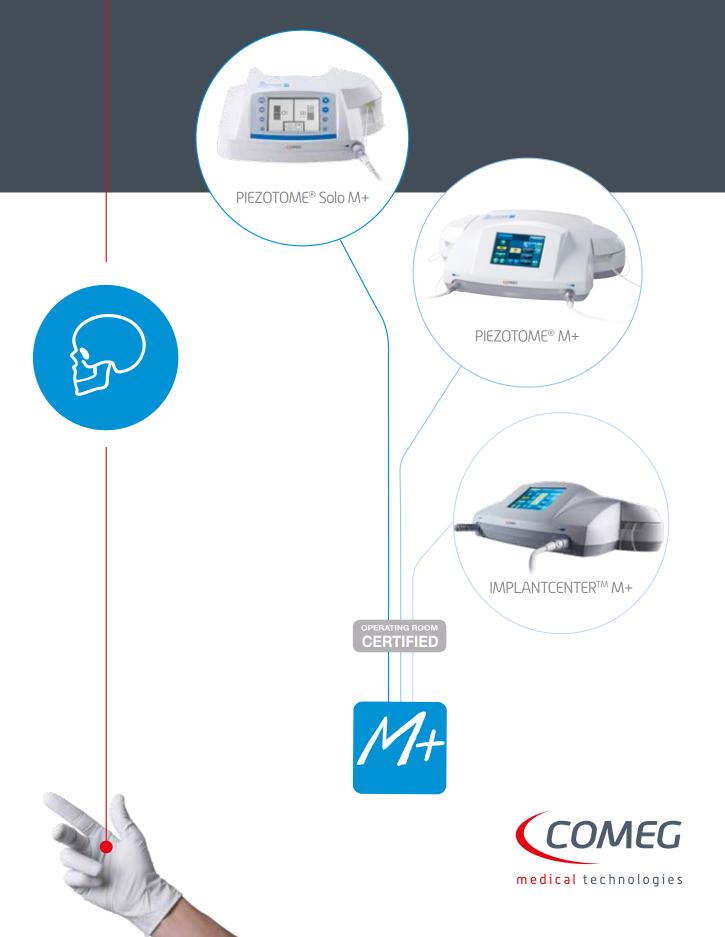
# Safe and atraumatic ultrasonic piezo bone surgery



# ULTRASONIC PIEZO CLINICAL BENEFITS

Ultrasonic piezo bone surgery was initially used by CMF surgeons and then extended to many other specialties, due to its great clinical benefits in oral and extra-oral surgeries:

#### Intraoperative

#### Safety

- Selective cut: soft tissues are preserved (nerve, arteries, dura mater)
- Avoid bone overheating

#### Precision

- Thin & precise osteotomies
- Maximize bone volume

#### Comfort

- No handpiece vibration
- Low pressure

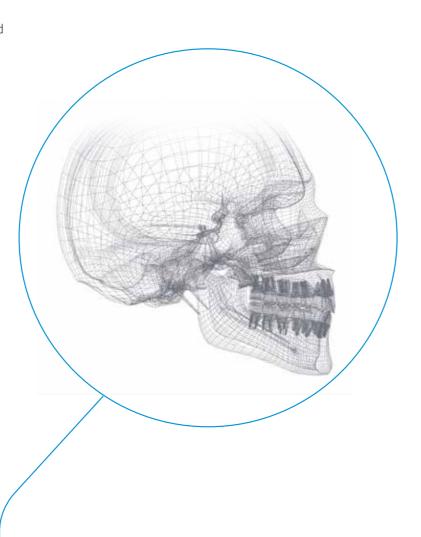
#### Post-operative

#### **Smoothness**

- Reduced pain
- Less swelling and bruising
- More natural results

#### Healing

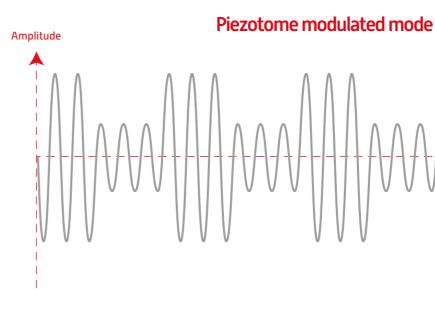
- Favors bone regeneration
- Fast recovery
- Stable and long term results



# MINIMALLY INVASIVE SURGERY

### Safety

The generator produces a modulated frequency ranging from 28 to 36 kHz. This signal alternates between high and low amplitude, known as the PIEZOTOME® modulated mode. The bone is cut at a frequency close to its relaxation frequency, limiting the risk of injury to fragile anatomical structures [nerves, arteries]. Bone cutting is precise, cell regeneration is optimized and the healing is of high quality. The ultrasonic piezoelectric technology is suitable for any type of oral or extra-oral surgery where precision and safety is a must.



#### References

- Gerbault O, Daniel RK, Kosins AM. The role of Piezoelectric Instrumentation in Rhinoplasty Surgery. Aesthetic Surgery Journal 2015;36(1):21-34.
- A. Troedhan, MD, DMD, PhD. Piezotome Rhinoplasty Reduces Postsurgical Morbidity and Enhances Patient Satisfaction: A Multidisciplinary Clinical Study. Journal of Oral and Maxillofacial Surgery, Volume 74, Issue 8, 1659.e1 - 1659.e11
- Reside J, Everett E, Padilla R, Arce R, Miguez P, Brodala N, De Kok I, Nares S. In vivo assessment of bone healing following PIEZOTOME® ultrasonic instrumentation. Clinical Implant Dentistry Related Research 2015;17(2):384-94. Doi: 10.1111/cid.12094. Epub 2013 jun 13.
- Compendium (upon request). Safe and atraumatic ultrasonic piezo bone surgery

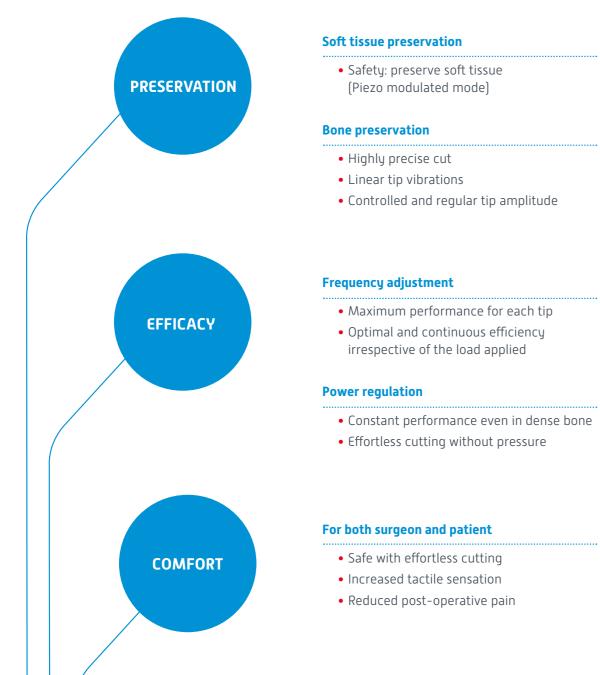
# When Safety & Efficacy Matter

# Time

# NEWTRON<sup>®</sup> TECHNOLOGY

### The Perfect Match

**Ultrasonic power generators** are piloted by patented NEWTRON<sup>®</sup> technology electronics. The electronic module, the handpiece and the tips are perfectly tuned providing great efficacy and clinical benefits.



# MINIMALLY INVASIVE SURGERY

### Efficacy

Electric current generates a deformation of the piezoceramic rings. The movement of these rings leads to vibrations, thus the tip vibrates in a very regular longitudinal movement.

- Patented electronic technology
- 6 ceramic rings for a boosted handpiece



# When Safety & Efficacy Matter



Our powerful piezoelectric generators broaden the scope of surgical applications



# CONCENTRATED ULTRASONICS

PIEZOTOME<sup>®</sup> Solo M+, compact and efficient, brings together all of the powerful, reliable and safe components of the M+ range for maximum performance and safety.

#### Clinical indications

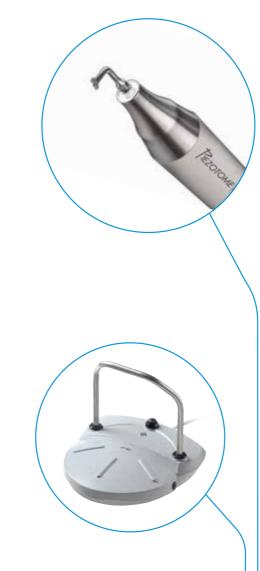
Active on hard tissue while preserving soft tissue. Small bones osteotomies, osteoplasties, drilling, smoothing where safety and precision are essential.

.....





# CONNECTED ACCESSORIES



#### Footswitch (operating room certified IPX6 guarantee against water-jet)

Makes it possible to control the principal actions to respond to the sterile environment:

- Power mode
- Ultrasound ON/OFF

OPERATING ROOM CERTIFIED

Concentrated

in an easy and

for bone surgery

powerful device

ultrasonics

- DELIVERED WITH
- 1x bracket
- 5x 3m single use irrigation lines with perforators
- 1x handpiece holders
- 1x IPX6 M+ footswitch
- 1x M+ wrench
- 1x 3m mains cord



#### PIEZOTOME® M+ LED handpiece

- Boosted handpiece: 6 ceramic rings
- Cold LED light for high visibility and low heat generation
- 3m long cord adapted to the operating room environment



#### Peristaltic pump for controlled irrigation

- Quick set-up
- Robust
- Precise and constant flow rate (avoids bone overheating)
- Silent running

# PIEZOTOME® Solo M+

### ULTRASONICS EXPERT

### CONNECTED ACCESSORIES

PIEZOTOME® M+ is a versatile device. Its dual connection allows you to connect two handpieces thus enabling faster clinical procedures. Easy adjustment settings with its touch screen and multifunction footswitch for perfect control throughout the surgical procedure.







#### Footswitch (operating room certified IPX8 guarantee watertightness)

Easy to move due to its arch, offers optimal control of the main functions:

- Power settings
- Choice of the active handpiece
- PIEZOTOUCH<sup>™</sup> mode:
- progressive power regulation

OPERATING ROOM CERTIFIED

#### DELIVERED WITH

- 2x brackets
- 5x 3m single use irrigation lines with perforators
- 2x handpiece holders
- 1x IPX8 M+ multifunction footswitch
- 1x M+ wrench
- 1x 3m mains cord

#### PIEZOTOME® M+ LED handpiece

- 2 handpiece connections
- Boosted handpiece: 6 ceramic rings
- Cold LED light for high visibility and low heat generation
- 3m long cord adapted to the operating room environment



#### Touch interface

- Large 5.7" operator-oriented screen
- Easy and intuitive settings
- Memory function

# PIEZOTOME® M+

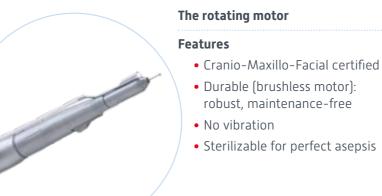
### THE ALLIANCE OF TECHNOLOGIES

(COMEG

IMPLANTCENTER<sup>™</sup> M+ is a unique concept combining the power of a rotary motor and the safety of piezoelectric instrumentations. It therefore ensures total independence for the surgeon and leads to a multitude of surgeries.

# DIVERSITY OF CONNECTED ACCESSORIES

The perfect alliance of rotating and ultrasonic technologies.



The alliance of technologies for safe and atraumatic bone surgery





#### Footswitch (operating room certified IPX8 guarantee watertightness)

Easy to move due to its arch, offers optimal control of the main functions:

- Global unit control
- PIEZOTOUCH™ mode: progressive power regulation

OPERATING ROOM CERTIFIED

#### DELIVERED WITH

- 1x I-SURGE<sup>™</sup> LED micromotor
- 2x brackets
- 5x 3m single use irrigation lines with perforators
- 2x handpiece holders
- 1x IPX8 M+ multifunction footswitch
- 1x M+ wrench
- 1x 3m mains cord

# IMPLANTCENTER™ M+

#### Performances

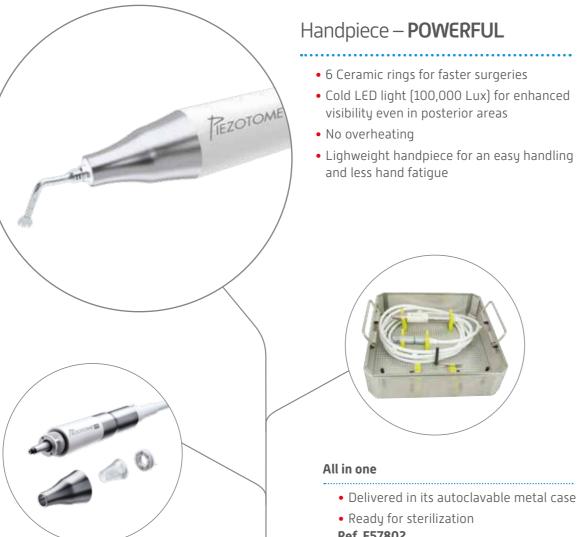
- Perfect balance between torque and speed for unmatched stability
- High torque: 6Ncm
- Large speed rotation motor: 100 - 40.000Rpm

#### PIEZOTOME® M+ LED handpiece

- Boosted handpiece: 6 ceramic rings
- Cold LED light improved and low heat generation
- 3 m long cord adapted to the operating room environment

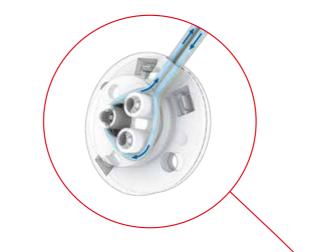
# ACCESSORIES

Performance comes together with specifically designed long lasting durable components.



#### Perfect asepsis

- Fully sterilizable (autoclavable & washerdisinfectable)
- Nose easily dismantled for perfect asepsis



#### Peristaltic pump for controlled irrigation

- Quick set-up
- Robust
- Precise and constant flow rate (avoids bone overheating)
- Silent running

#### Disposable irrigation line

Ref. F57378 x1 Ref. F57379 set of 5



- Delivered in its autoclavable metal case
- Ready for sterilization
- Ref. F57802

### Pump & Irrigation – SAFE

.....

A perfect control of irrigation is necessary for:

- Removing bone debris
- Reducing the risk of bone necrosis
- Generating a hemostatic effect due to the cavitation
- (implosion of microbubbles releasing oxygen)



#### Tips – ROBUST

- .....
- Designed to respect the patients anatomy
- Fast assembly screwing system: saves time during surgery
- Medical grade stainless steel
- Strengthened by thermic and surface treatments
- Synthetic diamond-coated tip
- Sterile tips treatment: gamma-ray

#### Kits & tips

Disposable, delivered sterile or 5x re-usable, delivered non-sterile

# Connected

# ULTRASONIC CRANIO-MAXILLO-FACIAL SURGERY

Piezoelectric surgery is a new bone cutting technique increasing safety especially in anatomically difficult to reach areas.

Micrometric vibrations ensure very thin and precise osteotomies with stable and long term results for a broad range of clinical applications:

#### Cranio

- Frontal sinus osteotomy
- Craniosynostosis
- Parietal graft

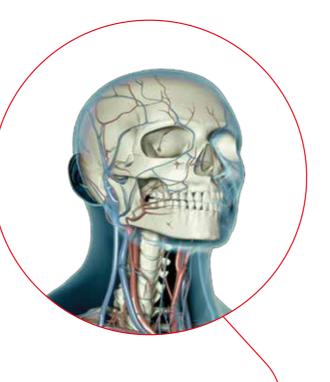
#### Maxillo

#### ••••••••••••••••••

- LeFort I osteotomy
- Bilateral Sagittal Split Osteotomy (B.S.S.O)
- Genioplasty

#### Facial

- .....
- LeFort II & III osteotomy
- Zygomatic bone osteotomy
- Reconstruction





#### Prof.Dr.Dr. Troedhan, Vienna, Austria

<sup>II</sup> The M+ Piezosurgical device, for the first time in the history of Piezoelectric-Surgery provides sufficient power for a fast surgical procedure in all cases of large osteotomies in orthognathic surgery, reconstructive surgery needing large autologous bone-transplants from the skull and in cosmetic surgery on facial hard-tissues. With its unrivaled precision and atraumaticity in bone-cutting CMF surgical procedures can usually be completed in less time than with traditional rotary or oscillating instruments with substantially less blood loss. In facial cosmetic surgery the application of newly developed ultrasonic surgical protocols provide a significant reduction of postsurgical morbidity and enhanced patient satisfaction with the outcome.

# FOR SAFER AND MORE ACCURATE SURGERY



#### BS1L - Saw

Saw (0.6mm) with laser marking at 3, 6, 9, 12 and 15mm

Deep osteotomy

#### BS2L XL & BS2R XL - Left & Right angled saws

.....

Long lateral saws (39.5mm length) for easier access adapted to patients anatomy

Osteotomy

#### BS1RD - Rounded saw

..... With its rounded shape the tip is active on a 280° surface and its length (40mm) makes it possible

to reach posterior areas easily

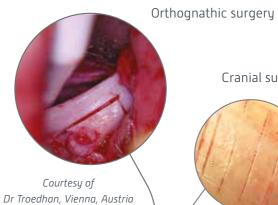
#### SL1 - Diamond-coated

- Vestibular bone window cut
- Smoothing of sharp angles
- Bone incisions close to delicate structures

......

#### BS4 - Circular scalpel

- Osteoplasty
- Bone harvesting



Cranial surgery

Courtesy of Dr Solyom, Toulouse, France

# OPEN ULTRASONIC RHINOPLASTY

A smooth and less traumatic procedure offering precise bone reshaping and controllable long term results.

#### **Precise bone treatment**

• The new ultrasonic rhinoplasty protocol allows default corrections (nose too hard, too wide or bumpy) with no unwanted fracture even on brittle, thin or unstable bones.

#### **Direct vision**

• Surgery performed under direct vision for enhanced precision.

#### Fast recovery

• Faster social-life re-integration: less ecchymosis and edema with more natural results.

#### Ultrasonic rhinosculpture

RHS2Hb and RHS2Fb tips are designed to sculpt bones without fracturing them

**Rhinoplasty with precise osteotomies** 

- --- Lateral osteotomy RHS3L or RHS3R
- --- Transverse osteotomy RHS3L or RHS3R
- --- Median obligue osteotomy RHS5

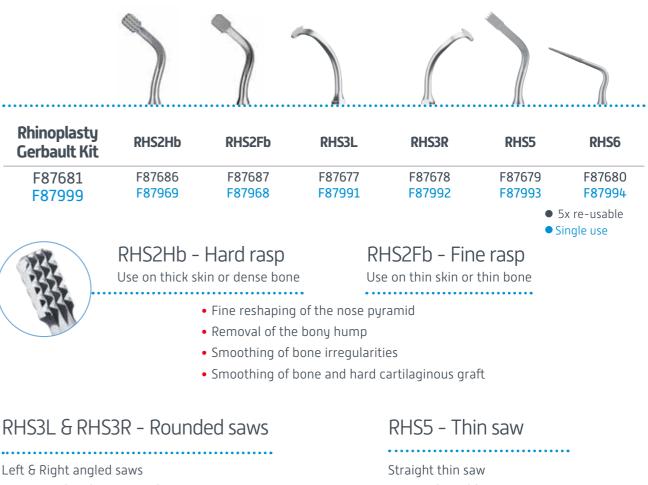


#### Dr Gerbault MD, Vincennes, France

" Piezoelectric surgery is a real disruptive technology in rhinoplasty, it allows a paradigm shift in the way of reshaping bones in rhinoplasty. It simplifies dramatically the way to perform hump reduction and osteotomies in rhinoplasty and adds a new dimension by allowing the possibility to sculpt and to polish nasal bones. Stable bones can be positioned with an unparalleled accuracy under direct vision and reshaped to achieve a perfect symmetry and smoothness of the bony vault. Moreover, this technique is easy, with a quick learning curve, simple to teach and the recovery is very fast as post-op ecchymosis is significantly reduced. For the first time in the history of rhinoplasty, a custom reshaping of the nasal bones is easily achievable.

# THE ESSENTIALS: GERBAULT RHINOPLASTY TIPS

Developed in collaboration with Dr. Gerbault, these tips are designed specifically for the nose anatomy; they do not alter the skin nor the blood vessels allowing for a guicker post-surgical recovery.



Rhinoplasty Gerbault Kit	RHS2Hb	RHS2Fb	R
F87681	F87686	F87687	F8
F87999	F87969	F87968	F8



#### RHS3L & RHS3R - Rounded saws

- Left & Right angled saws
- Lateral and transversal osteotomies

#### RHS6 - Diamond-coated drill

.....

Diamond-coated tip dedicated to nasal bone drilling or nasal spine drilling

- Bone suture
- Septal suture to bone

- Median obligue osteotomy
- Rib graft

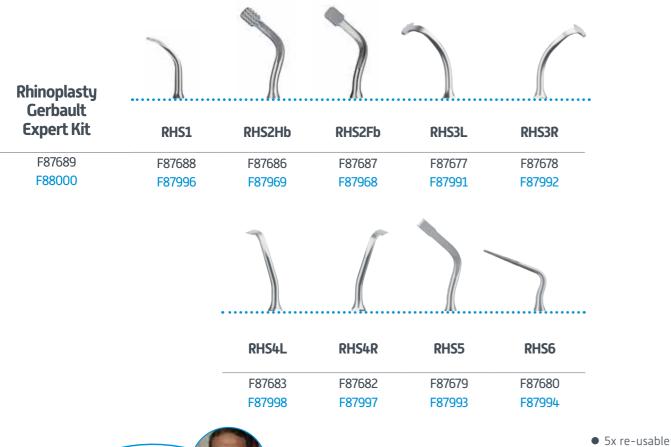


Courtesy of Dr Gerbault, Vincennes, France

# Rhinoplasty

### THE EXPERTS: GERBAULT RHINOPLASTY TIPS

The Expert kit provides unprecedent bone access. Each tip has been designed specifically to respect the anatomy and answer to the different steps of bone treatment in rhinoplasty, from bone rasping to osteotomies with a completely unobstructed and clear view. Thus, any bone convexity or asymmetry can be assessed and treated.





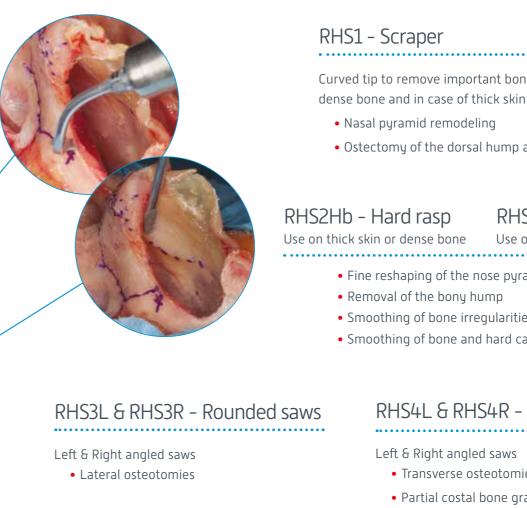
#### Dr Gerbault MD, Vincennes, France

• Single use

Rhinoplasty has dramatically changed with ultrasonic rhinoplasty: from a partially blind approach where bones were rasped and broken with the risk of unwanted fracture, it has become a completely visually controlled operation where bones are reshaped and mobilized without altering their stability. This accurate control on shape, position and smoothness of bones is achievable thanks to the use of piezoelectric instruments through a wide sub periosteal exposure of the whole bony vault, and is safe as they don't damage soft tissues and preserve bone supports. Ultrasonic rhinoplasty is an easy procedure. The dorsum and keystone smoothness is achieved by using very thin saws and rasps. Bones can be drilled to suture cartilages to bones, change their orientation or to improve their stability. Finally, long piezoelectric tips enable to straighten the septum or to harvest long pieces of septum without risking to destabilize it. Piezoelectric surgery is part of the current evolutions of 21st century surgery: aesthetic and functional rhinoplasty are profoundly impacted by this disruptive technology.

# SHAPED FOR ALL TYPES OF NOSE

COMEG miniaturized rhinoplasty instruments paired with M+ piezoelectric ultrasonic devices allow the reshaping and mobilization of bones without sacrificing bone stability as soft tissue is preserved.



#### RHS5 - Straight saw \_

Straight thin saw

- Median oblique osteotomy
- Costal bone grafting

#### RHS1 - Scraper

Curved tip to remove important bone excess: ostectomy on

- Nasal pyramid remodeling
- Ostectomy of the dorsal hump and lateral convexity

#### RHS2Hb - Hard rasp

#### RHS2Fb - Fine rasp

Use on thick skin or dense bone 

Use on thin skin or thin bone

- Fine reshaping of the nose pyramid
- Removal of the bony hump
- Smoothing of bone irregularities
- Smoothing of bone and hard cartilaginous graft

#### RHS4L & RHS4R - Angulated saws \_\_\_\_\_

Left & Right angled saws

- Transverse osteotomies
- Partial costal bone grafting

#### RHS6 - Diamond-coated drill \_\_\_\_\_

Diamond-coated tip dedicated to nasal bone drilling or nasal spine drilling

- Bone suture
- Septal suture to bone

Courtesy of Dr Gerbault, Vincennes, France

# Rhinoplasty

# • A COMPLETE AND DIVERSIFIED RANGE

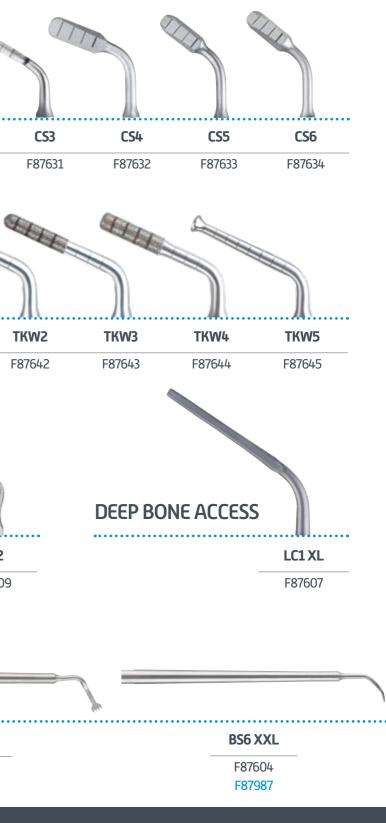


**CREST SPLITTING** ..... CS1 CS2 F87629 F87630 **CRESTAL SINUS LIFT** ..... TKW2 TKW1 Minimally invasive surgery for smooth sinus floor fracture F87642 F87641 **BONE DRILLING &** DB1 DB2

LONG LENGTH	
For minimally invasive	BS1 XXL
techniques and easier access	F87602
	F87986

F87610

F87609



# Clinical Expertise

•	TIPS	Recomm		Fine setting*	Irrigation ml/mn	•	TIPS	Recommended mode	Fine setting*	Irrigation ml/mn
<b>RhinoPlacty</b>										
	RHS1	D	)1	3	60	CranioMaxilloFacial	BS1L	D1	3	60
RhinoPlasty	RHS2Fb	D	)1	3	60		BS1RD	D1	3	80
	RHS2Hb	D	)1	3	60		BS2LXL/BS2RXL	D1	3	60
	RHS3L/RHS3R	D	)1	3	60		BS4	D1	3	60
OtherTips	RHS4L/RHS4R	D	)1	3	60	BoneSurgery	SL1	D1	3	60
	RHS5	D	)1	3	60		Osteotomy & Oste	oplasty		
	RHS6	C	)1	3	80		BS1S	D1	3	60
	Bone Drilling & Re	one Drilling & Remodeling					BS2L/BS2R	D1	3	60
	DB1	C	)1	3	80		BS4	D1	3	60
	DB2	C	)1	3	80-100		BS5	D3	3	60
	Deep Bone Access	5					BS6	D1	3	60
	LC1XL		)1	3	80-100	IntraLift	Crestal sinus lift			
	Long Length Tips						TKW1	D2	3	100
	BS1XXL	C	)1	3	80		TKW2	D2	3	100
	BS6XXL	C	)1	3	80		TKW3	D2	3	100
SinusLift	Lateral sinus lift						TKW4	D2	3	100
JIIIUSLIIU	SL1	C	)1	3	60		TKW5	D2	3	100
	SL2	C	)1	3	60	Extraction	Syndesmotomy	1		
	SL3	D	)4	3	50		LC1	D1	3	80-100
	SL4	D4 3		30		LC2	D1	3	80-100	
	SL5	D	)4	3	30		LC2L/LC2R	D1	3	80-100
CrestSplitting	Crest Splitting			1			NINJA™	D1	3	80-100
crestspitting		Mandible	Maxilla			CrownExtansion	Crown extension			
	CS1	D2	D3	3	80-100	CIOWITEAterision	BS6	D1	3	60
	CS2	D2	D3	3	80-100		CE1	D1	3	60-80
	CS3	D2	D3	3	80-100		CE2	D2	3	60-80
	CS4	D2	D3	3	80-100		CE3	D1	3	60-80
	CS5	D2	D3	3	80-100					
	CS6	D2	D3	3	80-100					

\*Not applicable to Piezotome® Solo M+

# Tips Settings

# THE BEST FOR YOU...

#### SECURITY: Cutting selectivity, no soft tissue lesions

- "Piezotome<sup>®</sup> surgery is superior in atraumaticity and soft-tissue safety (...) no lesions of the mandible nerve were detected with Piezotome<sup>®</sup> surgery<sup>"1</sup>  $\rightarrow$  "O lesion with Piezotome<sup>®</sup> vs 16% of hypesthesia with rotary instruments"
- LeFort I osteotomy "...total absence of soft tissue injuries, both in the posterior pedicle and in the vascular elements and palatal tissues"<sup>2</sup>
- "ACTEON<sup>®</sup> produced the least increase of intraosseous temperature" versus competitors units<sup>3</sup>

#### GREAT INTRAOPERATIVE CONTROL: Optimal visibility (cavitation), limits blood (hemostasis), remove bone debris and avoid temperature rises

• "Throughout the procedure a clear and stable view was achieved, with a low level of bleeding and adequate irrigation of the cutting area"<sup>2</sup>

#### FAST PROCEDURE:

- "... in 5 cases in which we used this technique, the duration of the osteotomy was 8 to 15 minutes, a trivial period in the entire surgery"<sup>4</sup>
- "A very quick performance was observed using Piezotome<sup>®"2</sup>
  - PIEZOTOME<sup>®</sup> = 137s
  - vs Piezon Master Surgery: 142s / vs Piezosurgery 3: 144s / vs VarioSurg : 149s
- 1- Ultrasonic Piezotome® Surgery: is it a benefit for our patients and does it extend surgery time? A retrospective comparative study on the removal of 100 impacted mandibular 3rd molar. A.Troedhan, A.Kurrek, M.Wainwright. Open Journal of Stomatology, 20113
- 2- LeFort I segmented osteotomy experience with Piezosurgery in orthognathic surgery. S.Olate, L.Pozzer, A.Unibazo, C.Huentequeo-Molina, F.Martinez, M.de Moraes. Int J Clin Exp Med 2014:7(8):2092-2095 3- Performance of ultrasonic devices for bone surgery and associated intraosseous temperature development. S.Harder, S.Wolfart, C.Mehl, M.Kern. The International Journal of
- Maxillofacial Implants Volume24, Number 3, 2009
- 4- Mandibular condylectomy revisited: technical notes concerning the use of an ultrasonic system. S.Olate and al. J Oral Maxillofac Surg 2013

### • ... AND FOR YOUR PATIENTS

#### BETTER HEALING PROCESS AND BONE REGENERATION

- "Piezoelectric instrumentation favors preservation of bone"<sup>3</sup>
- Better bone turnover and densification "Bone instrumented by piezoelectric surgery appears less detrimental to bone healing than high-speed rotating device"<sup>4</sup>

- More natural results

#### SAFE AND STABLE RESULTS

• Stable and long term results "...osteotomies can be performed with stability, because the underlying periosteum and mucosa are not damaged..." & "...allow the surgeon to easily stabilize unstable bones by drilling holes"<sup>6</sup>

4- In vivo assessment of bone healing following Piezotome® ultrasonic instrumentation. J.Reside, E.Everett, R.Padilla, R.Arce, P.Miguez, N.Brodala, I.De Kok, S.Nares. Clinical Implant Dentistry and Related Research, June 2013

5- Piezotome rhinoplasty reduces postsurgical morbidity and enhances patient satisfaction: A multidisciplinary clinical study. A.Troedhan. YJOMS57235 J Oral Maxillofac Surg 2016 6- The role of piezoelectric instrumentation in rhinoplasty surgery. O.Gerbault, RK.Daniel, AM.Kosins. Aesthetic Surgery Journal 2015;36(1);21-34

FIND ALL CLINICAL ARTICLES IN OUR COMPENDIUM REF. D57819

# Proven clinical benefits



#### SMOOTHNESS: Less traumatic

• Decreased postsurgical morbidity "...significant reduction or almost absence of postsurgical ecchymosis/edema and significant reduction of pain"<sup>5</sup> • "Increased patient satisfaction significantly"<sup>5</sup>



Find out more on our You Tube channel



Class IIb medical device (GMED) - CE0459 Manufactured by SATELEC $^{\circ}$  (FRANCE) distributed by COMEG Update on: 04/2019

### COMEG Medical Technologies is the Medical Division of the ACTEON<sup>®</sup> Group.

- Over 40 years of experience in surgical endoscopy
- Focused specifically in Minimally Invasive Surgery (MIS)
- Global presence on 6 continents
- Meeting the specific needs for GYN, URO, ENT, LAP, ARTHRO, CMF and PLASTIC surgery
- Intuitively connecting physicians with the appropriate solutions

COMEG designs intuitive solutions for minimally invasive surgery.

Local contact:



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