Safe and atraumatic ultrasonic piezo bone surgery

- PIEZOTOME® Solo M+
- PIEZOTOME® M+
- IMPLANTCENTER® M+

Find out more on our YouTube channel

COMEG Medical Technologies is the Medical Division of the ACTEON® 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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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

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.

Post-operative

When Safety & Efficacy Matter

References

- Compendium (upon request).

Ultrasonic Piezo Surgery.
NEWTRON® TECHNOLOGY

The Perfect Match

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

**PRESERVATION**

- **Soft tissue preservation**
  - Safety: preserve soft tissue (Piezo modulated mode)

- **Bone preservation**
  - Highly precise cut
  - Linear tip vibrations
  - Controlled and regular tip amplitude

**EFFICACY**

- **Frequency adjustment**
  - Maximum performance for each tip
  - Optimal and continuous efficiency irrespective of the load applied

- **Power regulation**
  - Constant performance even in dense bone
  - Effortless cutting without pressure

- **For both surgeon and patient**
  - Safe with effortless cutting
  - Increased tactile sensation
  - Reduced post-operative pain

**COMFORT**

- **When Safety & Efficacy Matter**

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

Our powerful piezoelectric generators broaden the scope of surgical applications
THE CHOICE OF HIGH TECHNOLOGY

COMEG devices are operating room certified. Approved by independent notified body, each device fulfills the most demanding medical regulatory standards. The advanced electronics prevent any interfering emissions. Find out more from your biomedical engineer.

THE ALLIANCE OF TECHNOLOGIES

CONCENTRATED ULTRASONICS

THE ULTRASONIC EXPERT

OPERATING ROOM CERTIFIED

- Class Iib
- Equipotential plug
- IEC 60601-1 – 3rd Edition
- Footswitch certified IPX6 & IPX8
- BVS Safety Marking (USA only)
CONCENTRATED ULTRASONICS

PIEZOTOME® 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.

Concentrated ultrasonics for bone surgery in an easy and powerful device

Power mode from d1 (most powerful) to d4

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

CONNECTED ACCESSORIES

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

Piezotome® M+ LED handpiece

Peristaltic pump for controlled irrigation
• Quick set-up
• Robust
• Precise and constant flow rate (avoids bone overheating)
• Silent running

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

PIEZOTOME® Solo M+
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.

**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

**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™ mode: progressive power regulation

**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

**THE ULTRASONICS EXPERT**
The ultrasonic expert for fast and secure bone surgery
THE ALLIANCE OF TECHNOLOGIES

IMPLANTCENTER™ 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 rotating motor

Features
- Cranio-Maxillo-Facial certified
- Durable (brushless motor): robust, maintenance-free
- No vibration
- Sterilizable for perfect asepsis

Performances
- Perfect balance between torque and speed for unmatched stability
- High torque: 6Ncm
- Large speed rotation motor: 100 - 40,000 rpm

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

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

DELIVERED WITH
- 1x i-SURGETM 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

The alliance of technologies for safe and atraumatic bone surgery
Performance comes together with specifically designed long lasting durable components.

Handpiece – **POWERFUL**

- Ceramic rings for faster surgeries
- Cold LED light (100,000 Lux) for enhanced visibility even in posterior areas
- No overheating
- Lightweight handpiece for an easy handling and less hand fatigue

Perfect asepsis

- Fully sterilizable (autoclavable & washer-disinfectable)
- 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

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

**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 (explosion of microbubbles releasing oxygen)

**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

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Facial

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

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 unrivalled 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

CMF kit

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<tr>
<th>BSIL</th>
<th>BS2L XL</th>
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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

Orthognathic surgery

Cranial surgery

Courtesy of Dr. Troedhan, Vienna, Austria

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

RHS2H and RHS2F tips are designed to sculpt bones without fracturing them.

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 quicker post-surgical recovery.

Rhinoplasty Gerbault Kit

- RHS2H - Hard rasp
  - Use on thick skin or dense bone
  - Fine reshaping of the nose pyramid
  - Removal of the bony hump
  - Smoothing of bone irregularities
  - Smoothing of bone and hard cartilaginous graft

- RHS2F - Fine rasp
  - Use on thin skin or thin bone
  - Lateral and transversal osteotomies

- RHS3L & RHS3R - Rounded saws
  - Left & Right angled saws
  - Lateral and transversal osteotomies

- RHS5 - Thin saw
  - Straight thin saw
  - Median oblique osteotomy
  - Rib graft

- RHS6 - Diamond-coated drill
  - Diamond-coated tip dedicated to nasal bone drilling or nasal spine drilling
  - Bone suture
  - Septal suture to bone

RHS2H: F87676
RHS2F: F87675
RHS3L: F87677
RHS3R: F87678
RHS5: F87679
RHS6: F87680

Rhinoplasty with precise osteotomies

- Lateral osteotomy – RHS3L or RHS3R
- Transverse osteotomy – RHS3L or RHS3R
- Median oblique osteotomy – RHS5

Courtesy of Dr. Gerbault, Vincennes, France
THE EXPERTS : GERBAULT RHINOPLASTY TIPS

The Expert kit provides unprecedented bone access and allows for safe treatment of the septum. Each tip has been designed specifically to answer the aesthetic and functional steps of bone treatment in rhinoplasty from bone rasping and cutting to treating the septum with a completely unobstructed and clear view. Thus, any bone convexity or asymmetry can be assessed and treated.

RH87689

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.

RHS1 - Scraper
Curved tip to remove important bone excess: ostectomy on dense bone and in case of thick skin
- Nasal pyramid remodeling
- Ostectomy of the dorsal hump and lateral convexity

RHS2Hb - Hard rasp
Use on thick skin or dense bone
- Fine reshaping of the nose pyramid
- Removal of the bony hump
- Smoothing of bone irregularities
- Smoothing of bone and hard cartilaginous graft

RHS3L & RHS3R - Rounded saws
Left & Right angled saws
- Lateral osteotomies

RHS4L & RHS4R - Angulated saws
Left & Right angled saws
- Transverse osteotomies
- Partial costal bone grafting

RHS5 - Straight saw
Straight thin saw
- Median oblique osteotomy
- 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

RHL5 - Long saw
Long straight saw for the treatment of the septum
- Cephalic osteotomy
- Caudal osteotomy

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.

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A COMPLETE AND DIVERSIFIED RANGE

OSTEOTOMY/OSTEOPLASTY
Clean and thin cut for maximal bone volume
Ref. F57805

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LATERAL SINUS LIFT
Maximal comfort: selective and hemostatic cut
Ref. F57806

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SYNDESOMOTOMY
For maximum bone preservation
Ref. F57809

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CROWN EXTENSION
Excellent precision and accessibility
Ref. F57810

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CREST SPLITTING
Rapid and minimally invasive technique for controlled expansion
Ref. F57808

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CRESTAL SINUS LIFT
Minimally invasive surgery for smooth sinus floor fracture
Ref. F57807

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BONE DRILLING & REMODELING

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LONG LENGTH TIPS
For minimally invasive techniques and easier access

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Clinical Expertise