Safe and atraumatic ultrasonic piezo bone surgery

PIEZOTOME® Solo M+

PIEZOTOME® M+

IMPLANTCENTER™ M+

INTUITIVE CONNECTION

COMEG medical technologies
ULTRASONIC PIEZO CLINICAL BENEFITS

Minimally Invasive Surgery

When Safety & Efficacy Matter

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 environments:

Intra-operative

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

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
- 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

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

When Safety & Efficacy Matter

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

COEMG 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.
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.

CONNECTED ACCESSORIES

PIEZOTOME® M+ LED handpiece

• Boosted handpiece: 6 ceramic rings
• Cold LED light for high visibility and low heat generation
• 3 m 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

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

Concentrated ultrasonics for bone surgery in an easy and powerful device

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.

The ultrasonic expert for fast and secure bone surgery

PIEZOTOME® M+ LED handpiece
- 2 handpiece connections
- Boosted handpiece: 6 ceramic rings
- Cold LED light for high visibility and low heat generation
- 3 m 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

PIEZOTOME® M+ OPERATING ROOM CERTIFIED
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.

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: 6 Ncm
- 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
A COMPLETE OFFER
Find the device that matches your needs.

<table>
<thead>
<tr>
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<th>PIEZOTOME® SOLO M+</th>
<th>PIEZOTOME® M+</th>
<th>IMPLANTCENTER™ M+</th>
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<td>1 x I-SURGE™ LED micromotor</td>
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<td><strong>M+ Pack</strong> Ref. F57802</td>
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<td>1 x M+ wrench</td>
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<td><strong>CONSUMABLES</strong></td>
<td>Kits &amp; tips [2 types]</td>
<td>Disposable irrigation line</td>
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<td>Disposable [delivered sterile]</td>
<td>Ref. F57378 x 1</td>
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<td>5 x re-usable and non-sterile tips</td>
<td>Ref. F57379 set of x 5</td>
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Expertise
ACCESSORIES

Performance comes together with specifically designed long lasting durable components.

Handpiece – **POWERFUL**
- LED handpiece fully sterilizable
- Delivered in its autoclavable metal case
- Ready for sterilization
- Ref. F57802

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

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)
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

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

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

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:

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

CMF kit |
| BS1L | BS2L XL | BS2R XL | BS1RD | SL1 | BS4 |
| F57803 | F87612 | F87605 | F87606 | F87608 | F87618 | F87615 |
| F57804 | F87792 | F87793 | F87794 | F87795 | F87797 |

5 x re-usable
Single use

BS1L – Saw
Saw (0.6 mm) with laser marking at 3, 6, 9, 12 and 15 mm
- Deep osteotomy

BS2L XL & BS2R XL – Left & Right angled saws
Long lateral saws (39.5 mm 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 (40 mm) 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

Orthognatic surgery
Cranial surgery

Image extract from Dr. Troedhan, Vienna, Austria
Image extract from Dr. Solyom, Toulouse, France
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 better precision.

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

**Ultrasound rhinosculpture**
RHS2H and RHS2F tips allow to sculpt bones without any fracture.

Dr Gerbault MD, Vincennes, France

Piezo electric 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.

Developed in collaboration with Dr Gerbault, these tips are designed for a total respect of the anatomy (smoothness), they do not alter the skin nor the vessels for shorter post-surgical recovery.

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RHS2F - Fine grater
Use on thin skin or thin bone
- Fine reshaping of the nose pyramid
- Removal of the bony hump
- Smoothing of bone irregularities

RHS2H - Hard grater
Use on thick skin or dense bone
- Low osteotomy – RHS5
- Lateral osteotomy – RHS3L or RHS3R
- Transverse osteotomy – RHS3L or RHS3R
- Median oblique osteotomy – RHS5

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

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

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

Rhinoplasty with precise osteotomies
- Low osteotomy – RHS5
- Lateral osteotomy – RHS3L or RHS3R
- Transverse osteotomy – RHS3L or RHS3R
- Median oblique osteotomy – RHS5

Image extract from Dr Gerbault, Vincennes, France (RHS2H tip)
OTHER KITS AND TIPS TO COMPLETE THE RANGE

OSTEOTOMY/OSTEOPLASTY

Clean and thin cut for maximal bone volume
Ref. F57805

OSTEOPLASTY

B5S B5L B5R B54 B5S B56
F87611 F87613 F87614 F87615 F87616 F87617

LATERAL SINUS LIFT

Maximal comfort: selective and hemostatic cut
Ref. F57806

SL1 SL2 SL3 SL4 SL5
F87618 F87619 F87620 F87621 F87622

SYNDESMOTOMY

For maximum bone preservation
Ref. F57809

LC1 LC1-90° LC2 LC2L LC2R NINJA*
F87623 F87624 F87625 F87626 F87627 F87628

CROWN EXTENSION

Excellent precision and accessibility
Ref. F57810

B56 C61 C62 C63
F87617 F87651 F87652 F87653

CREST SPLITTING

Rapid and minimally invasive technique for controlled expansion
Ref. F57808

CS1 CS2 CS3 CS4 CS5 CS6
F87529 F87530 F87531 F87532 F87533 F87534

CRESTAL SINUS LIFT

Minimally invasive surgery for smooth sinus floor fracture
Ref. F57807

TKW1 TKW2 TKW3 TKW4 TKW5
F87641 F87642 F87643 F87644 F87645

L5 x re-usable
S Single use

Clinical expertise
COMEG medical is a company of the ACTEON® Group, specializing in endoscopic medical technology and ultrasonic piezoelectric systems.

- Customer-oriented and dedicated to **continuous innovation**
- **Tailored offer** to meet the needs of all operating room staff
- **Intuitive techniques that guarantee performance, ergonomics and safety** for all the specialties (gynecology, urology, general surgery, ENT, arthroscopy, CMF, spinal surgery)
- **Partnership** with surgeons and teams for approximately **40 years**

COMEG medical creates intuitive and connected solutions for minimally invasive surgery.